

# *SOUTHEASTERN BIOLOGY*



Volume 63

April, 2016

Number 2

*ASB*

*ASB*

## **ASB 77<sup>TH</sup> ANNUAL MEETING**

*ASB*

**MARCH 31 – APRIL 3, 2016**

*ASB*

*ASB*

**Davidson College, Davidson, North Carolina**

*ASB*

*ASB*

**Queens University of Charlotte**

*ASB*

**Charlotte Teachers Institute**

**University of North Carolina at Charlotte**

*ASB*

**Meeting Site: Convention Center at the  
Embassy Suites, Concord, North Carolina**

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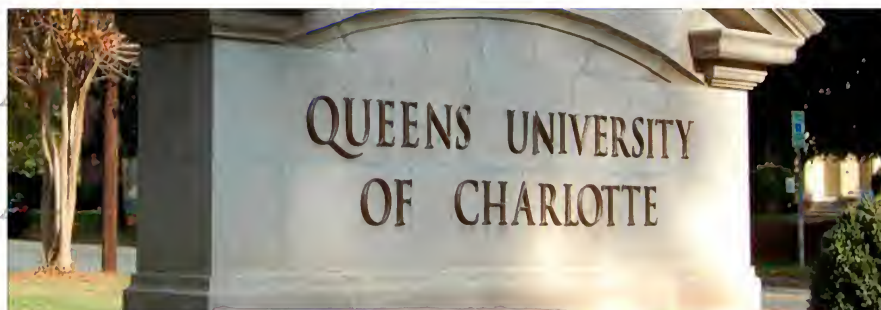
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See Page 125 and Consult Website

<http://www.sebiologists.org>

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Entrance to the University

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## **SOUTHEASTERN BIOLOGY**

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### **PURPOSE**

The purpose of this association shall be to promote the advancement of biology as a science by encouraging research, the imparting of knowledge, the application of knowledge to the solution of biological problems, and the preservation of biological resources. The ASB has representation in Section G Committee of the AAAS. Varying types of membership are available to individuals and institutions. See inside back cover.

### **TIME AND PLACE OF FUTURE MEETINGS**

2016 March 31-April 3: Featured Institutions – Davidson College, Davidson, NC; Queens University of Charlotte; The Charlotte Teachers Institute; and The University of North Carolina at Charlotte. Meeting site is the Embassy Suites, Charlotte-Concord, NC.

## THE VIEW FROM HERE

### A MESSAGE FROM THE PRESIDENT JOEY SHAW

#### Dear ASB Members and Associates,

Please skim the **11 bullet points in bold** as they contain new or important information for ASB 2016 in Concord, NC.

Much more information is available on the Concord [meeting page](#). We will be posting all relevant information for the 2016 meeting there. Also, if you are not currently following us on Facebook, please do, as we post news and updates frequently during meeting season.

We need your help to make ASB successful. Please take a minute now to mark your calendars for the important dates and take another minute to invite friends and colleagues. Now is the time to send friendly invitations, so your friends and colleagues can make plans. Please give a few minutes of your time right now to ASB and send a couple of emails. The more people who attend the meeting, the better the pricing is for all in the future and the more impact our society has in our discipline.

#### Important points from the last email:

- (1) **2016 meeting days are shifted to a Thursday – Sunday meeting.** The Welcome Social will be held on Thursday evening, March 31st. Oral and poster presentations will begin on Friday morning and we will have the Social Event on Friday evening. Oral and poster presentations will also occur on Saturday and our meeting will come to a close on Saturday night at the Awards Banquet. Field trips will occur on Sunday, but we are also working on a few potential field trips for the Thursday (day) before the Mixer kicks off that evening.
- (2) **Absolute deadline for abstract submission on Sunday, February 7, 2016.** Abstracts will be accepted from Wednesday December 16th – Sunday, February 7. In years past we have commonly extended the deadline for abstract submission. **We will not provide an extension this year.** If your abstract is submitted late, it will not be in the printed program and it will be up to the discretion of the Program Committee as to whether or not they can accept it.

#### New information:

- (3) **Abstract submission opens today and runs through Feb 7.** Please get your abstracts and those of your students in order. One change from previous years is that we will require students to check a box that states his/her advisor approved the abstract. Please work with us on this as improperly formatted abstracts, or submitting them twice,

creates a lot of work on the volunteers who work hard to create the program. Also, please try not to submit multiple times as this too places burden on the program committee. More details about oral and poster presentations are available on the website.

- (3) **New travel fund to defray the expenses of first generation undergraduate college students.** The awards are to defray the cost of student registration, student membership, travel and lodging costs associated with the 2016 ASB Meeting. [2016 Application Guidelines](#).
- (5) **Updated [exhibitor prospectus](#) and [application form](#).** We need your assistance to continue to grow our exhibit hall. Please forward these links to the vendors that you would like to see or know would like the opportunity to showcase/network with this unique, scholarly, forward-thinking audience. We need to fill the exhibit hall so that it benefits our Association, so please help us to get the word out.
- (6) **Updated award structure to offer more awards.** Please see our [website](#) for details and rules of application. We are probably most excited about the creation of several new student awards, including student poster and presentation awards in the categories of: Cell and Molecular Biology, Aquatic Biology, Animal Biology, and Microbiology. These eight new student awards are in addition to the longstanding affiliate awards in the fields of botany and ecology that are sponsored by the Southern Appalachian Botanical Society (SABS), Southeastern Section of Ecological Society of America (ESA), and the Southeastern Section of the Botanical Society of America (BSA). In total, this means that at our 2016 meeting we will have 12 student research awards spread across all major biological disciplines.
- (7) **Make hotel reservations now!** Hotel information is available on our [website](#). We have negotiated two rates, one for students and one for professionals. Please be very honest here as we have made very close estimations on percentages, the contract holds ASB to guarantees on numbers of rooms, and “cheating” to save yourself a few dollars might really hurt our Association as we could be held to make up differences. There are two separate links: Standard reservation (\$142/night for 1 king or two double beds) and Student reservation (\$122/night for 1 king or 2 double beds). While these rates are higher than last year, please keep in mind that the Embassy Suites offers two free drinks (beer, wine, soda) per night for each reported guest. Also, included in this price is an excellent, free, cooked-to-order breakfast including fruit, oatmeal, eggs, sausage, bacon, pastries, and an omelet bar (If you haven't stayed at an Embassy Suites, I encourage you to look at the [breakfast menu](#). Again, this price includes cocktail hour and free breakfast.)
- (8) **No special breakfasts at this year's meeting** because Embassy Suites offers an extensive “free” breakfast. That is, there will not be an SABS Breakfast, Past Presidents Breakfast, or an Exhibitors

Breakfast. For us to offer this would mean attendees of these breakfasts would be foregoing their “free” breakfast and paying for an additional breakfast. Participants of these groups will instead meet for coffee and pastries in the meeting, which will follow breakfast on your own in the lobby/breakfast area.

- (9) Registration will open January 11, 2016 and early registration will close at 5PM on March 14th.** Costs for this year’s meeting are now on the ASB website and pasted below. Please note, and remember to remind your students, that it is cheaper to become a member and then register than to register as a non-member.

ASB Student Member (early/on site)	\$136/\$186
ASB Student Non-Member (early/on site)	\$186/\$236
ASB Student Non-Member + \$20 dues (= \$30 savings)	\$156/\$206
ASB Professional Member (early/on site)	\$265/\$330
ASB Professional Non-Member (early/on site)	\$330/\$395
ASB Professional Non-Member + \$50 dues (= \$15 savings)	\$315/\$380
ASB Emeritus Member	\$136/\$186
ASB Patron (Included with Patron Membership)	--
ASB Exhibitor (Included with Exhibitor Fees)	--

- (10) Plenary Speaker this year is Reed Noss.** Dr. Noss is a Provost’s Distinguished Research Professor, Pegasus Professor, and Davis-Shine Professor of Conservation Biology at the University of Central Florida and President of the Florida Institute for Conservation Science. More information on Dr. Noss and his research can be found on his laboratory [website](#).

- (11) Four symposia and two workshops planned for ASB 2016.**

**Symposia**

1. Southeastern Symposium on Zebrafish Development and Genetics
2. Ecology and Evolution of Quillworts (Isoetes) in the American South - Quillcon II
3. Connecting university scholars and classroom teachers for innovative STEM education
4. Collaborations, information technologies and educational tools to build a regional research engine: an update on the SERNEC Herbarium effort

**Workshops**

1. Creating a visual key - a case study in visual learning
2. Georeferencing of biological collections data

I look forward to seeing you in Concord, but first let’s all enjoy the Holiday.

**Sincerely,**

**Joey Shaw**, *President, Association of Southeastern Biologists*



### ASB CANDIDATES FOR OFFICE – 2016

The Nominations Committee comprised of Zack Murrell, Pat Parr and Ray Williams has developed a slate of candidates for our 2016 election. Offices we need to fill in April include President-Elect, Vice President, Secretary and two Executive Committee Members-at-large. The slate of nominees is below. As you will remember, we voted last April to allow single candidate elections, but we also wanted to allow adequate time for nominations from the floor. Please send any nominations to Zack Murrell before the ASB business meeting so they can be added to the slate.

---

<i>President-Elect</i>	<b>Ashley Morris</b>	Middle Tennessee State University Murfreesboro, Tennessee
<i>Vice President</i>	<b>William Ensign</b>	Kennesaw State University Kennesaw, Georgia
<i>Secretary</i>	<b>Judy Awong-Taylor</b>	Georgia Gwinnett College Lawrenceville, Georgia
<i>Executive Committee Members-at-Large</i>		
	<b>J. Christopher Havran</b>	Campbell University Buies Creek, North Carolina
	<b>Christopher Gissendanner</b>	University of Louisiana at Monroe School of Pharmacy Monroe, Louisiana

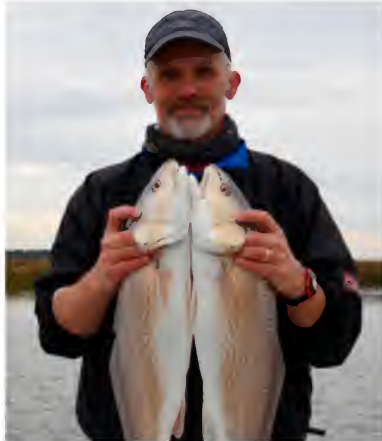
#### President-Elect Ashley Morris



Dr. Ashley Morris is in her fifth year as a faculty member in the Department of Biology at Middle Tennessee State University in Murfreesboro. She is currently in review to be promoted and tenured as an Associate Professor. Prior to MTSU, Ashley was a faculty member in Biology at the University of South Alabama in Mobile, for four and a half years. She holds a B.S. in Natural Resources from the University of the South – Sewanee (1997), a M.S. in Botany from the University of Tennessee, Knoxville (2001), and a Ph.D. in Botany from the University of Florida (2006). Her research focus is primarily on plant conservation

genetics, phylogeography, and systematics, and on the importance of biological collections in research. She has active research funding from the US Fish and Wildlife Service and the National Science Foundation, as well as internal funding from the MTSU Foundation. She has mentored or co-mentored more than 30 graduate and undergraduate research students between USA and MTSU. In her nine and a half years as a faculty member, she has taught undergraduate genetics almost every semester. She has invested a significant amount of time into curriculum redesign in this area, which led to an NSF-funded project at USA. She co-wrote the current Genetics lab manual used at MTSU. Other courses she has taught in recent years include Dendrology and Flowering Plants. Ashley attended her first ASB meeting in Wilmington, North Carolina in 1999. At the 2010 meeting in Asheville, she was elected to the Executive Committee as a Member-at-Large. She volunteered to serve as Web Editor, and worked to revitalize the ASB web presence. At the 2014 meeting in Spartanburg, South Carolina, she was elected Vice President. For the past two years, Ashley served as Chair of the Exhibitor Committee. Today, she continues to work closely with our Web Administrator, Chris Fleming, to maintain an online presence through the web and social media.

### **Vice President William Ensign**



Dr. Ensign is a professor in the Department of Ecology, Evolution and Organismal Biology at Kennesaw State University, Kennesaw, Georgia. He received his B.A. in Zoology from the George Washington University (before most of the students attending the 2016 meeting were born), an M.S. in Ecology from the University of Tennessee (1988) and a Ph.D. in Fisheries Science from Virginia Tech (1995). His expertise is in aquatic ecology with a particular emphasis on fish diversity, distribution and abundance in freshwater streams and rivers. His research has included investigations of Brook and Rainbow Trout abundance in the southern

Appalachians, the impact of stream channel modifications on the federally endangered Roanoke Logperch, recolonization success of stream fish following fish kills, use of underwater observation for monitoring fish populations, documentation of the distribution and abundance of both fish and freshwater mussels in a variety of flowing water systems, the use of fish community structure in bioassessment, investigations of the effects of human barriers to stream fish movement and dispersal, and his current research on urban and non-urban populations of the charismatic Central Stoneroller. He has ongoing contracts with local water authorities to assist with bioassessments in Paulding and Cobb Counties, Georgia. As a result, he samples fishes in 12 to 20 streams each summer and has a squadron of willing and malleable undergraduates

trailing behind his every-ready backpack electrofisher. Many of the students have gone beyond the role of field assistant and developed undergraduate research projects based on the summer sampling and most of these have presented their results at ASB meetings. He has twice received the Kennesaw State University College of Science and Mathematics award for Excellence in Research and Creative Activity. He has been a member of ASB since 1999 and has been active in service to the Society since 2007, including serving as an at-large member of the Executive Committee (2012-2015), chair and member of the Student Awards Committee (almost continuously), and as co-organizer of a symposium on research at undergraduate institutions. The proudest moment of his professional life came when he was honored with the ASB Meritorious Teaching Award in 2015.

### **Secretary Judy Awong-Taylor**



Dr. Judy Awong-Taylor is a Professor of Biology at Georgia Gwinnett College, Lawrenceville, Georgia. She received her bachelor's degree in Zoology and Botany from the University of the West Indies, Trinidad, and her master's and doctoral degrees from the University of Florida in the area of Environmental Microbiology. Prior to joining GGC, Dr. Awong was a Professor of Biology and Interim Department Head at Armstrong Atlantic State University and also served as Director of the University System of Georgia's STEM Initiative. She is also a PULSE Leadership Fellow. During her tenure at AASU, she was actively involved in undergraduate research, student-centered learning, and K-16 collaborative activities. Her current interests center on STEM Education and as a PULSE Leadership Fellow she is actively involved in efforts focused on departmental and institutional change. She is passionate about teaching and is the recipient of AASU's Kristina Brockmeier Faculty Teaching and Service Award, the H. Dean Propst Teaching Excellence Award, and the University System of Georgia-Board of Regent's Teaching Excellence Award. She has authored and co-authored several lab manuals, is the recipient of multiple grants, and has presented with her students at numerous professional conferences including ASB. Dr. Awong also served as a *Beta Beta Beta* Biological Honor Society advisor for fourteen years and has actively participated in numerous regional TriBeta Meetings. She has been an active member of ASB and TriBeta for over 15 years, has served on the Microbiology Awards Committee as both a member and Chair, and is currently serving as Vice-President of ASB.



## Executive Committee Members-at-Large

### J. Christopher Havran



Dr. Havran is an Associate Professor in the Department of Biological Sciences at Campbell University in Buies Creek, North Carolina. Chris received a B.S. in Biology with a focus in Botany from Lebanon Valley College (Annville, PA) in 2002, a M.S. in Biology from The University of Louisiana at Monroe in 2004, and a Ph.D. in Environmental and Plant Biology from Ohio University in 2008. Chris has taught courses in Introductory Biology, Botany, Plant Physiology, Tree and Shrub Identification, and Hawaiian Natural History and Culture. The latter is a program taught for three weeks across Hawaii. Students in his Hawaiian field program have the

opportunity to collaborate on original research. His research efforts focus on southeastern floristics and the evolutionary history of endemic Hawaiian flowering plants. Since joining the faculty of Campbell University in 2008 Chris has mentored 14 undergraduate students. His students have presented their research at the ASB annual meeting since 2011 and three of his students have been recognized with the Young Botanist Award from the Botanical Society of America. He has received the Dean's Excellence in Research Award (2012) and the Walter S. Jones Sr. Alumni Award for Research Excellence (2013) from Campbell University. Chris is the founder and current curator of the Campbell University Herbarium (CAU). Chris has served on the ASB Education Committee for four years. In 2013 he became co-chair of the Committee with Kirk Stowe. He worked with Kirk to organize a symposium entitled: "Educational Opportunities at Biological Field Stations in the Southeastern United States" held at the 2014 annual meeting of the ASB in Spartanburg, SC. In 2015 he served on the ASB's Executive Committee as a Member at Large for a one-year term. He thoroughly enjoys the annual ASB meetings and has fond memories of presenting his first research presentation at the 2004 meeting of the ASB in Memphis.

### Christopher Gissendanner



Dr. Gissendanner is an Associate Professor in the Pharmacology group at the University of Louisiana at Monroe School of Pharmacy. He earned his B.S. in Biological Sciences from Florida State University (1993) and his M.S. (1999) and Ph.D. (2001) in Cellular Biology from the University of Georgia. He worked four years in the biotechnology industry before joining the ULM Department of Biology in 2004. He moved to the School of Pharmacy in 2011. His research interests are in developmental genetics, specifically the genetic regulation of organogenesis using the *C. elegans* model system. His research has been supported by multiple state and federal grants. Dr. Gissendanner

has also been heavily involved in promoting undergraduate research experiences and has participated in the HHMI SEA-PHAGES program at ULM since 2008. This program uses bacteriophage discovery to introduce freshman biology majors to scientific research. He has been a member of ASB since 2008 and served on the Microbiology and Student Research Award committees and is a former faculty advisor for Beta Beta Beta. Dr. Gissendanner also serves as an associate editor for *Eastern Biologist* and as a member of the External Advisory Committee for the Arkansas IDeA Networks of Biomedical Research Excellence.

CG

**77<sup>th</sup> Annual Meeting Program**

**Association of Southeastern Biologists**



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### **Beta Beta Beta**

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### **Society of Herbarium Curators**

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### **Southern Appalachian Botanical Society**

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### *Co-Chairs*

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Georgia Gwinnett College

Riccardo Fiorillo  
Georgia Gwinnett College

Howard S. Neufeld  
Appalachian State University

The program committee wishes to thank Mark Suggs, **abi**GRAPHICS, for his help in creating the abstract submission form and for formatting the program and list of abstracts. We also thank Chris Fleming for creating the Mobile App that enables you to search the program on your mobile device. Finally, we express our sincere appreciation to Ashley Morris, Middle Tennessee State University, for her excellent maintenance of the ASB webpage.





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## Welcome from the ASB President

Dear ASB Members and Associates,

It is my pleasure to welcome you to the 77th annual meeting of the Association of Southeastern Biologists in Concord, North Carolina. We are coming off an energy-charged and nearly record-breaking meeting in Chattanooga, Tennessee, where we had 974 attendees and a great party at the Tennessee Aquarium. We hope to maintain this momentum into Concord and beyond.

As you already know, we are experimenting this year with shifting the days to a Thursday-Sunday meeting, rather than our traditional Wednesday-Saturday. After this meeting, we will send out a questionnaire for you to give us your thoughts on this shift. The shift in days has also allowed us to experiment with having field trips on both sides of our conference (the Thursday before and the Sunday after). We are excited to have four symposia planned (Quillcon II: Ecology and Evolution of Quillworts, Zebrafish development and genetics, Information technologies to build a regional research engine, and CTI: Connecting University Scholars and Classroom Teachers) and three workshops (Georeferencing biological collections, Creating a Visual Key: A Case Study in Visual Learning, ASB Education Committee Lunch/Workshop). Thanks to the great work of Past President Zack Murrell, our awards were restructured and we are offering more awards in different disciplines. Please see our website ([www.sebiologists.org](http://www.sebiologists.org)) to learn more about the workshops, symposia, field trips, and award restructure.



In Concord 2016, Dr. Reed Noss will kick off our meeting with his plenary address on Thursday evening. Our Friday Night Social event will be at Discovery Place among the Body Worlds exhibit. Transportation will be provided to and from the venue where we will have live music and an awesome dinner with the usual beverage selections. Our meeting will conclude on Saturday evening at the Awards Banquet.

ASB is a volunteer organization and we need you to volunteer your time to continue ASB's success. Please take the time to volunteer and carry some of the weight of our Association. You can stop by the ASB booth in the exhibit hall, send an email to a member of the Executive Committee, or click the "Get Involved" button on our home page to ask how you might become involved.

We know that you will enjoy Concord 2016 as you renew acquaintances and friendships, forge new relationships, and learn about the wonderful research going on in and around the Southeast.

I'll see you soon,

Joey Shaw, President, Association of Southeastern Biologists. 



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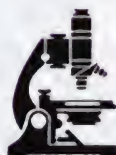
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## Exhibitors at ASB 2016

***Please be sure to thank our exhibitors  
for their continuing support!***

- **Electron Microscopy Sciences** – Electron microscopy sciences will have on display their complete line of accessories, chemicals, equipment for all fields of microscopy, biological research and general laboratory requirements. **(Booth 1)**
- **Discover Life in America** – Discover Life in America's mission is to discover and understand America's species through science and education for conservation. **(Booth 2)**
- **Highlands Bio Med, LLC** – Highlands Bio Med, LLC specializes in sanitation and disinfection equipment for vivaria, laboratories and hospitals. Our product lines include lab washers, autoclaves and bedding management systems. **(Booth 3)**
- **Associated Microscope** – Sales & service of microscopes—service all brands—sell Leica Microsystems, National & Swift Optical, Accu-Scope, Unitron, Labo Med & Meiji Microscopes as well as Ohaus Balances. We are also school trained to service Spectrophotometers. **(Booths 4 & 5)**
- **Medical Equipment Services** – Bio-Medical equipment service & repair in labs & research facilities, installation, certification, removal/disposal, preventative maintenance, calibration, and asset management. **(Booth 6)**
- **eScience Labs** – eScience Labs collaborates with hundreds of higher education institutions to provide hands-on laboratory kits to students engaged in online and blended learning. **(Booth 7)**
- **Southern Appalachian Botanical Society** –Our mission is to promote the study of botany in eastern North America. **(Booth 8)**
- **iDigBio** – iDigBio is the national resource for digitized information about vouchered natural history collections and promotes the uses of biodiversity collections data for research and education. **(Booth 10)**
- **Convion** – Convion is a global supplier of controlled environment systems offering an extensive product portfolio including single and multi-tier chambers and rooms, research greenhouses, and related services. **(Booth 11)**
- **Martin Microscope Company** – Celebrating 70 years of serving the Southeastern US! Microscopes and digital imaging systems for education, laboratory, and research. **(Booth 12)**

- **ASB 2017** – Montgomery, Alabama. **(Booth 13)**
- **Carolina Biological Supply** – Carolina is a worldwide leader in providing K–16 educators with top-quality, innovative science and math materials, including our newest e-learning tools available at Carolina science online.com. **(Booth 14)**
- **Vashaw Scientific, Inc.** – Vashaw Scientific, Inc. is a full service microscopy, imaging, and material sample preparation provider servicing the Southeast since 1978. We offer a broad portfolio of manufacturers, which uniquely qualifies Vashaw to solve your requirements with the appropriate solutions. **(Booth 15)**
- **National Association of Biology Teachers** – As the “leader in life science education” NABT is dedicated to empowering educators to provide the best biology and life science education for all students. **(Booth 16)**
- **Association of Southeastern Biologists** – Promoting biology through research and education for more than 75 years. **(Booths 20 & 21)**

#### ***Academic Programs***

- University of North Carolina Greensboro, Biology Department – MS and PhD programs in the UNCG Department of Biology. **(Booth 9)**



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## Registration Hours

**Thursday, March 31, 2016**

11 am – 9 pm



**Friday, April 1, 2016**

7 am – 7 pm





**Saturday, April 2, 2016**


7 am – noon

## Exhibit Hall Hours



**Thursday, March 31, 2016**

9 am – 4 pm		Exhibitor Move-In
12 noon – 2 pm		Exhibitor Pizza Party (Exhibitors Only)

**Friday, April 1, 2016**

8 am – 5 pm		Exhibits and Posters on Display
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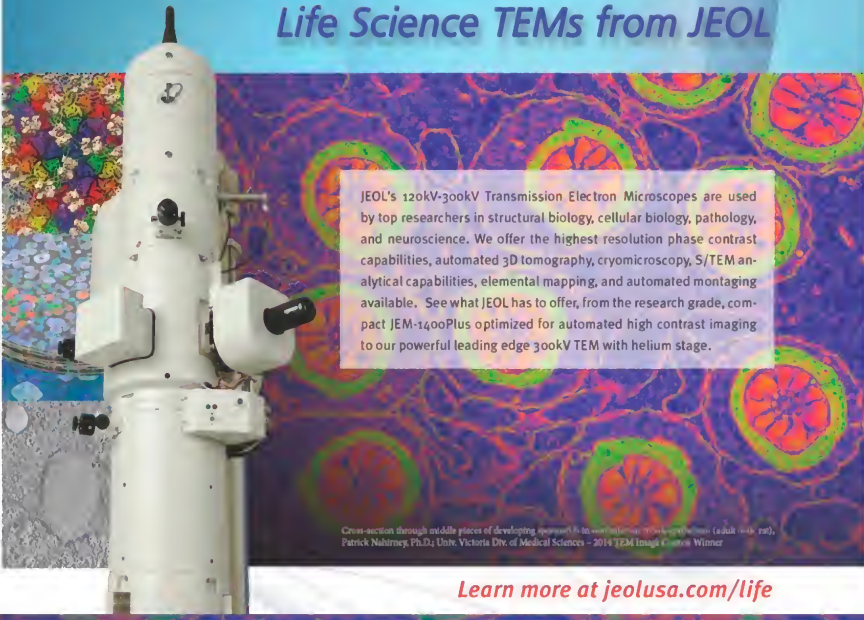
**Saturday, April 2, 2016**

8 am – 5 pm		Exhibits and Posters on Display
5 pm		Exhibitors Move-Out



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Cross-section through middle pieces of developing spermatocytes from the testes of a 10-day-old mouse (adult male rat).  
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Bacteriophage Epstein 15, Wuh Chin, Ph.D.,  
Baylor College of Medicine (top image)  
Rabbit Retinal Connectome volume, Robert Man, Ph.D.,  
Man, Lab, Moran Eye Center, Univ. of Utah (middle image)  
Neuron, 200nm, tomography, Greg Ning, Ph.D.,  
Penn State University College of Agricultural Sciences  
(bottom image)

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## Symposia

### **(S1) Collaborations, Information Technologies, and Educational Tools to Build a Regional Research Engine: An Update on the SERNEC Herbarium Effort**

**8:15 AM – 12:00 PM • Friday, April 1 • Kannapolis A**

**Organizer:** Zack Murrell, Appalachian State University [murrellze@appstate.edu](mailto:murrellze@appstate.edu)

The SouthEast Regional Network of Expertise and Collections (SERNEC) grew out of annual gatherings of regional curators at the Association of Southeastern Biologists meetings. The SERNEC NSF-supported Research Coordination Network (RCN) provided support from 2005-2011 for training and idea exchange among the curators in the Southeast. Our more recent NSF-supported Thematic Collection Network (TCN), with funding from 2014-2018 for 94 herbaria and six Information technology entities, provides us with a technical infrastructure to capture herbarium images and transfer them to various portals, where they can be transcribed and georeferenced. This effort includes Symbiota, GEOLocate, Notes from Nature, Specify and iPlant as web and software based entities that provide our “data pipeline”. This symposium will highlight our efforts to link the human infrastructure with the technical infrastructure to build a specimen-based research engine that can generate regional scale research capabilities.

### **(S2) Southeastern Symposium on Zebrafish Development and Genetics\***

**1:30 PM – 4:30 PM • Friday, April 1 • Kannapolis A**

**Organizer:** Ted Zerucha, Appalachian State University [zeruchat@appstate.edu](mailto:zeruchat@appstate.edu)

In the last 20–25 years, the zebrafish has emerged as a major model system to address questions related to Developmental, Cell, and Molecular Biology. Opportunities for zebrafish researchers to meet regionally have become few and far between, however. This symposium is an opportunity for zebrafish scientists from the southeast to meet, share ideas, and form potential collaborations. The symposium will have opportunities for PIs and advanced graduate students to give oral presentations and will also feature a poster session.

\*Sponsored by North Carolina  
Biotechnology Center



### **(S3) Ecology and Evolution of Quillworts (Isoetes) in the American South – Quillcon II**

**8:30 AM – Noon • Saturday, April 2 • Kannapolis A**

**Organizers:** Jay F. Bolin, Catawba College [jfbolin@catawba.edu](mailto:jfbolin@catawba.edu). Lytton J. Musselman, Old Dominion University [lmusselm@odu.edu](mailto:lmusselm@odu.edu)

The Southeastern United States is a center of quillwort diversity with the number of recorded species doubling in the past decade or so—and new taxa being found each year. So it is appropriate that the Second Quillwort Conference should be held in conjunction with the annual meeting of the Association of Southeastern Biologists and the Southern Appalachian Botanical Society at the 2016 meeting 31 March–3 April in Concord, North Carolina.

The first conference, dubbed QuillCon I, was held in Douglas, Georgia in 2000 and since that time research has expanded in terms of extensive molecular studies and field collections and also by an increase in the number of researchers, both in the lab and in the field. QuillCon II will consist of invited papers on 1 April with a keynote talk by W Carl Taylor, senior author of the treatment of Isoetes for Flora North America. Other speakers include researchers from the Smithsonian Institution, Italy, Canada, and Southeastern institutions. Ample time is allocated for discussions.

Major fieldwork in the American South the past three decades has revealed surprising diversity within this poorly studied genus. New species and hybrids have been described, other taxa have been recently discovered but not named, and numerous other collections are being studied to determine their taxonomic status. Concurrent with fieldwork have been phylogenetic studies suggesting that the genus is more diverse than expected and that resolution of polyphyly is sorely needed. While quillworts appear to have a classic pattern of reticulate evolution, we have little idea what selective factors might drive their evolution. The purpose of the symposium, therefore, is to bring together quillwort researchers to discuss lab and field findings and to collaborate on further research.

All day Saturday 2 April will be devoted to presentations and discussions with a field trip on Sunday 3 April to some of the fascinating granite outcrops in the region lead by regional isoetologist Jay Bolin of Catawba College. Warning! There is a likelihood of new species on these rocks.

**(S4) Connecting university scholars and classroom teachers  
for innovative STEM education – CTI Symposium**

**1:30 PM – 2:45 PM • Saturday, April 2 • Kannapolis B**

**Organizer:** Scott Gartlan, University of North Carolina at Charlotte  
[scott.gartlan@uncc.edu](mailto:scott.gartlan@uncc.edu).

Charlotte Teachers Institute (CTI) is an innovative partnership between CMS (Charlotte Mecklenburg Schools), Davidson College, and the University of North Carolina at Charlotte (UNC Charlotte). CMS teachers (e.g. CTI Fellows) are engaged in intensive content-rich seminars led by faculty (e.g. Seminar Leaders) to learn new information, work collaboratively with other district teachers, and develop original curriculum units for their classrooms. In this symposium, Teacher Fellows will discuss their experiences, present examples from their units, and provide insights regarding classroom implementation. Fellows from a range of disciplines (biology, earth science, and math) from seminars focused on Metamorphosis and the Intersection of Science, Technology, and Culture will present their work. The success of this program is facilitated by the emphasis on Teacher Leadership and engagement in collaborative and creative venues.

## **Workshops**

**(W1) Georeferencing of Biological Collections Data**

**8:00 AM – 5:00 PM • Thursday, March 31 • Fairway A/B**

**Organizer:** Zack Murrell, Appalachian State University [murrellze@appstate.edu](mailto:murrellze@appstate.edu).

This workshop will provide an overview of georeferencing concepts, best practices and workflows using the GEOLocate platform in relation to the SERNEC herbarium digitization and georeferencing effort. Specific topics covered will include a brief overview of georeferencing, using the GEOLocate platform for single record, batch processing and collaborative georeferencing, Symbiota integration, upcoming developments, and logistics and workflows specific to georeferencing SERNEC data. The GEOLocate software platform is being used by zoologists and botanists and this workshop will be open to anyone interested in biodiversity informatics.

**(W2) Creating a Visual Key – A Case Study in Visual Learning****8:00 AM – Noon • Saturday, April 2 • Concord J****Organizer:** Bruce Kirchoff, Univ. of NC at Greensboro [kirchoff@uncg.edu](mailto:kirchoff@uncg.edu).

Although illustrations have played an important role in identification keys and guides since the 18th century, their use has varied widely. Some keys lack all illustrations, while others are heavily illustrated. Even within illustrated keys the way in which images are used varies considerably. During this workshop we will review some best practices for image use in keys, and create a completely visual key. By a visual key I mean a key based almost exclusively on images, and that contains a minimal amount of text. These types of keys have been made possible by advances in digital imaging, which has allowed the rapid collection of standardized photographs of plants. Characters in visual keys are visually, not verbally defined. During the workshop participants will learn how to create visual keys, and will create a visual key to a group of taxa. Participants will receive the full set of images from the workshop so that they can recreate the exercise in their class. The exercise is suitable for use, with modification, from introductory biology to graduate level classes in plant taxonomy. This will be a hands-on workshop in which everyone can participate. This event will be capped at 24 attendees.

**(W3) ASB Education Committee Lunch Workshop****Noon – 1:30 PM • Saturday, April 2 Blue Ridge****Organizer:** ASB Education Committee, Erika Niland – Chair [e.scocco@wingate.edu](mailto:e.scocco@wingate.edu).

The Education Committee luncheon will focus on a collaborative effort between ASB scientists and high school teachers to deliver specific curriculum topics to high school students. Scientists trained in a specific discipline can use video conferencing equipment to speak to the high school student when a particular topic is covered. The luncheon will cover what equipment will be needed and how to use it. We will also cover how to volunteer as a scientist, and how high school teachers can contact those scientists. Anyone interested in this program or to be a part of the Education Committee may attend. ☺





## Association of Southeastern Biologists 2016

### Meeting-At-A-Glance

**Thursday, March 31<sup>st</sup> – Sunday, April 3<sup>rd</sup>**

**Concord Convention Center at Embassy Suites Hotel Concord, NC**

#### Wednesday, March 30<sup>th</sup>

Time	Event	Location
8:00 AM – 5:00 PM	Exhibit Hall - Move in and set up	Concord EF
8:00 AM–5:00 PM	Registration Set Up	Registration South Rotunda
10:00 AM–12:00 PM	ASB EC VIPs Pre-Convention Mtgs.	Blue Ridge
12:00 PM–1:00 PM	ASB EC - Exhibit Hall lay out	Concord EF

#### Thursday, March 31<sup>st</sup>

Time	Event	Location
<b>8:00 AM–5:00 AM</b>	<b>ASB Logistics Room</b>	<b>Harrisburg B</b>
8:00 AM - 5 PM	Workshop: Georeferencing of biological collections data	Fairway A/B
9:00 AM–4:00 PM	Exhibitor Set-up	Concord EF
11:00 AM–9:00 PM	<b>Registration Open</b>	Registration South Rotunda
11:00 AM–2:00 PM	Exhibitor Pizza Lunch (exhibitors only)	Concord EF
NOON–10:00 PM	PowerPoint Preview Check	Harrisburg A
NOON—5:00 PM	<b>Field Trip 1:</b> Redlair Preserve, NC Plant Conservation Program.	Depart from Convention Center
1:00 PM–6:00 PM	<b>ASB Executive Committee Meeting</b>	Concord G
1:00 PM–6:00 PM	<b>SABS Executive Council Meeting</b>	Concord H
2:00 PM–4:00PM	<b>Field Trip 2:</b> Tour of NC Research Campus	Consult Trip Information for specific Departure Times and Locations
5:30 PM—7:30 PM	<b>Happy Hour-Complimentary Manager's Reception</b>	Embassy Suites Lobby
7:30 PM–9:00 PM	<b>Welcome and Plenary Speaker</b> <b>Welcome: Joan Lorden, Provost</b> University of NC Charlotte <b>Plenary Speaker: Reed F. Noss</b> Provost's Distinguished Research Professor, Davis-Shine Professor of Conservation Biology, and Pegasus Professor University of Central Florida <b>'Fire in the Evolutionary Environment of the Coastal Plain'</b>	Concord ABCD

Time	Event	Location
9:00 PM–10:30 PM	<b>Plenary Welcoming Social Reed F. Noss Book Signing</b>	Concord EF <i>Ticket required to attend</i>

**Friday, April 1<sup>st</sup>**

Time	Event	Location
6:00 AM–9:00 AM	Complimentary Cooked-To-Order Breakfast for Hotel Guests	Embassy Suite Lobby
7:00 AM–7:00 PM	<b>Registration Open</b>	South Rotunda
7:00 AM–5:00 PM	PowerPoint Preview Check ASB Logistics Room	Harrisburg A Harrisburg B
7:15 AM–8:15 AM	<b>ASB Past President's Post Breakfast Meeting Meeting Patrons/Exhibitors Post Breakfast Meeting</b>	Blue ridge Kitty Hawk
7:00 AM–5:00 PM	<b>ASB POSTER SESSIONS</b> <b>ASB Posters (#1-157, Sessions 1 &amp; 2) set up 7:00–8:00 AM</b> Presenters of <b>odd-numbered posters</b> (Poster Session 1) must be present 9:45–10:45 am. Presenters of <b>even-numbered posters</b> (Poster Session 2) must be present 2:45–3:45 pm	<b>Concord EF</b>
8:00 AM–5:00 PM	<b>Exhibits Open</b>	Concord EF
8:15 AM–9:45 AM	<b>ASB Paper Presentations</b> Ecology: Community 1 Ecology: Physiological Invertebrate Biology Cell and Molecular Biology 1 Systematics 1  <b>Symposium:</b> Collaborations, information technologies and educational tools to build a regional research engine: an update on the SERNEC Herbarium effort	Concord A Concord B Concord CD Concord I Concord J  Kannapolis A
9:45 AM–10:45 AM	<b>Break for Poster Session 1 and Coffee • No talks at this time</b> Presenters of <b>odd-numbered posters (1-157)</b> must be present at this time	Concord EF
10:45 AM–NOON	<b>ASB Paper Presentations</b> Ecology: Community 1 Ecology: Physiological Invertebrate Biology Cell and Molecular Biology 1 Systematics 1  <b>Symposium:</b> Collaborations, information technologies and educational tools to build a regional research engine: an update on the SERNEC Herbarium effort	Concord A Concord B Concord CD Concord I Concord J  Kannapolis A

Time	Event	Location
NOON–1:30 PM	<b>Lunch (Individuals and Organizations)</b> (Concessions available throughout Hotel) <b>ASB Diversity Committee Lunch</b> (BYOL) <b>SHC SE Chapter Luncheon/Business Meeting</b> (BYOL)	Blue Ridge Fairway A
12:00 PM–5:00 PM	<b>βββ Field Trip to SeaLife Aquarium</b> (βββ members only)	Departs from Hotel Lobby
1:30 PM–2:45 PM	<b>ASB Paper Presentations</b> Ecology: Communities 2 Ecology: Ecosystems Herpetology Cell and Molecular Biology 2 Systematics 2  <b>Symposium:</b> Southeastern Symposium on Zebrafish Development and Genetics Sponsored by North Carolina Biotechnology Center	Concord A Concord B Concord CD Concord I Concord J  Kannapolis A
2:45 PM–3:45 PM	<b>Break for Poster Session 2 and Coffee • No talks at this time</b> Presenters of <b>even-numbered posters (1-157)</b> must be present at this time.	Concord EF
3:45 PM–5:00 PM	<b>ASB Paper Presentations</b> Ecology: Communities 2 Ecology: Ecosystems Herpetology Cell and Molecular Biology 2 Systematics 2  <b>Symposium:</b> Southeastern Symposium on Zebrafish Development and Genetics Symposium ends at 4:30 PM	Concord A Concord B Concord CD Concord I Concord J  Kannapolis A
5:00 PM	Poster Removal	Concord EF
5:30 PM–7:30 PM	<u>Happy Hour-Complimentary Manager's Reception</u>	Embassy Suites Lobby
6:00 PM— 11:00 PM	<b>Friday Night ASB Social:</b> Discovery Place, Charlotte, NC  <b>Live Music, Food, Drinks</b> Gunther Von Haggens's <b>'Body Worlds and the Cycle of Life Exhibit'!</b> Shuttle service from Convention Center to Discovery Place provided.	Departure from Convention Center begins at 6:00 PM  Event begins at 6:30  Return transportation at 10:30 PM

Saturday, April 2<sup>nd</sup>

Time	Event	Location
6:00 AM - 9:00 AM	Complimentary Cooked-To-Order Breakfast for Hotel Guests	Embassy Suite Lobby
7:00 AM–12:00 PM	<b>Registration Open</b>	Registration South Rotunda
7:00 AM–8:15 AM	<b>SABS/BSA Post-Breakfast Meeting</b>	Kannapolis B
7:00 AM–5:00 PM	PowerPoint Preview Check ASB Logistics Room	Harrisburg A Harrisburg B
7:00 AM–5:00 PM	<b>ASB POSTER SESSIONS</b> <b>ASB Posters (#158-274, Sessions 3 &amp; 4) set up 7:00–8:00 AM</b> Presenters of <b>odd-numbered posters</b> (Poster Session 3) must be present 9:45–10:45 am. Presenters of <b>even-numbered posters</b> (Poster Session 4) must be present 2:45–3:45 pm	<b>Concord EF</b>
8:00 AM–NOON	<b>Workshop: Creating a Visual Key–A Case Study in Visual Learning.</b> Bruce Kirchoff, Dept. of Biology, UNC Greensboro ( <i>registration required-24 max cap</i> )	Piedmont
8:00 AM–NOON	<b>βββ POSTER SESSIONS</b> β β β Poster set up 8:00 AM–9:00 AM Presenters must be present 9:30 AM–NOON	<b>Concord EF</b>
8:00 AM–6:00 PM	<b>β β β Officers &amp; Judges Room</b>	JHQ Boardroom
9:00 AM–9:30 AM	<b>β β β Joint Business Meeting (all delegates MUST attend)</b>	Fairway AB
8:15 AM–9:45 AM	<b>ASB Paper Presentations</b> Ecology: Populations 1 Ecology: Conservation 1 Ecology: Aquatic Biology 1 Microbiology 1 Teaching and Learning 1  <b>Quillcon II Symposium:</b> Ecology and Evolution of Quillworts ( <i>Isoetes</i> ) in the American South - Quillcon II	Concord A Concord B Concord CD Concord I Concord GH  Kannapolis A
9:45 AM–10:45 AM	<b>Break for Poster Session 3 and Coffee •</b> No talks at this time <b>ASB presenters of odd-numbered posters</b> (158-274) must be present at this time.	Concord EF

Time	Event	Location
10:45 AM–NOON	<b>ASB Paper Presentations</b> Ecology: Populations 1 Ecology: Conservation 1 Ecology: Aquatic Biology 1 Microbiology 1 Teaching and Learning 1  <b>Quillcon II Symposium:</b> Ecology and Evolution of Quillworts ( <i>Isoetes</i> ) in the American South - Quillcon II	Concord A Concord B Concord CD Concord I Concord GH  Kannapolis A
NOON–1:30 PM	<b>Lunch (Individuals and Organizations)</b> (Concessions available throughout Hotel) <b>Education Committee Luncheon Workshop (BYOL)</b> <b>ESA Luncheon and Business Mtg. (BYOL)</b> <b>Quillcon II Symposium: - <i>Isoetes</i> lunch workshop (BYOL)</b>	Blue Ridge Kitty Hawk Kannapolis A
1:30 PM–4:00 PM	<b>βββ Paper Presentations</b> District I — District II — District I/II combined	Carolina A Carolina B Carolina C
1:30 PM–2:45 PM	<b>ASB Paper Presentations</b> Ecology: Populations 2 Ecology: Conservation 2 Ecology: Aquatic 2 Floristics Microbiology 2 Teaching and Learning 2  <b>CTI Symposium:</b> Connecting university scholars and classroom teachers for innovative STEM education Symposium ends at 2:45 PM	Concord A Concord B Concord CD Concord J Concord I Concord GH  Kannapolis B
2:45 PM–3:45 PM	<b>Break for Poster Session 4 and Coffee • No talks at this time ASB Presenters of even-numbered posters (158-274) must be present at this time.</b>	Concord EF
3:45 PM–5:00 PM	<b>ASB Paper Presentations</b> Ecology: Populations 2 Ecology: Conservation 2 Ecology: Aquatic 2 Floristics Microbiology 2 Teaching and Learning 2	Concord A Concord B Concord CD Concord J Concord I Concord GH
4:00 PM–5:30 PM	<b>SABS/BSA Students' Reception</b>	Rocky River Grille Patio

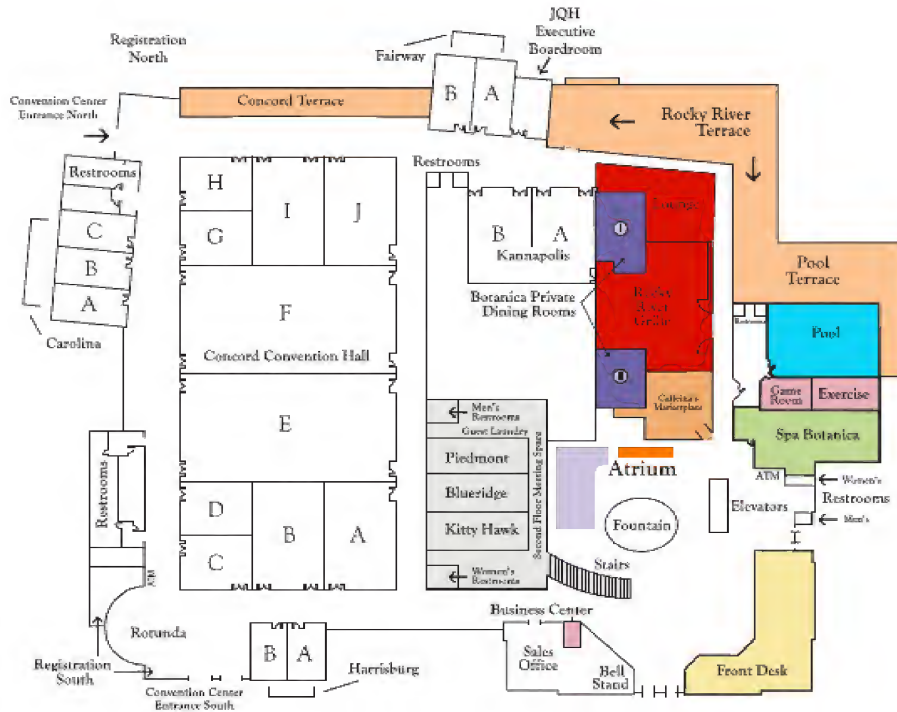


Time	Event	Location
4:30 PM–5:00 PM	<b>β β β District Session Meetings</b> District I– District II–	Carolina A Carolina B
5:00 PM	Poster Removal	Concord EF
5:00 PM–6:00 PM	<b>β β β Joint Session and Awards</b>	Fairway A/B
5:00 PM–6:00 PM	<b>ASB Business Meeting</b> ( <i>All members are invited to attend</i> )	Concord GH
5:30 PM–6:30 PM	<b>SABS Past-Presidents Happy Hour</b>	Embassy Suite Lobby
5:30 PM —7:30 PM	Happy Hour-Complimentary Manager's <u>Reception</u>	Embassy Suites Lobby
7:00 PM–9:30 PM	<b>ASB Awards Banquet:</b> Dinner and Presentation of Awards	Concord ABCD

**Sunday, April 3<sup>rd</sup>**

Time	Event	Location
7:30 AM–8:30 AM	<b>ASB Executive Committee Breakfast</b>	Embassy Suite Lobby
8:30 AM–NOON	<b>ASB Executive Committee Meeting</b>	Fairway A
8:00 AM–5:00 PM	<b>ASB Field Trips 3:</b> Pee Dee National Wildlife Refuge.  <b>ASB Field Trips 4:</b> Working on the Rocks: Quillworts of the NC Piedmont.	Consult Trip Information for specific Departure Times and Locations

### Concord Convention Center at Embassy Suites Hotel



#### ASB 2016 Internet Access

Free internet access is available in the hotel to Embassy Suite guests who register with the Hilton Honors Member Program. Registering for this program is free, easy, and only takes a minute. Once registered, you can use your new Hilton Honors Member Code and room number to access the internet. Please take advantage of this opportunity so you can have free internet access for the duration of our conference. Note: internet access may be weak in the meeting space and if this is the case, relocate to the lobby for stronger signal.

## ASB 2016 Event Guide

ASB POSTER SESSIONS Concord EF	
FRIDAY	<b>SESSIONS 1 AND 2</b> Poster numbers 1-157
SATURDAY	<b>SESSIONS 3 AND 4</b> Poster numbers 158-274
7:00 AM	Set up posters
8:00 AM-5:00 PM	Posters are displayed
9:45 AM-10:45 AM	Presenters of <b>odd-numbered posters must</b> be present at this time.
2:45 AM-3:45 PM	Presenters of <b>even-numbered posters must</b> be present at this time.
5:00 PM	Remove posters

ASB PAPER PRESENTATIONS		
<b>FRIDAY</b> 8:15 AM-Noon	Ecology: Community 1 Ecology: Physiological Invertebrate Biology Cell and Molecular Biology 1 Systematics 1	Concord A Concord B Concord CD Concord I Concord J
<b>FRIDAY</b> 1:30 PM - 5:00 PM	Ecology: Communities 2 Ecology: Ecosystems Herpetology Cell and Molecular Biology 2 Systematics 2	Concord A Concord B Concord CD Concord I Concord J
<b>SATURDAY</b> 8:15 AM-Noon	Ecology: Populations 1 Ecology: Conservation 1 Ecology: Aquatic Biology 1 Microbiology 1 Teaching and Learning 1	Concord A Concord B Concord CD Concord I Concord GH
<b>SATURDAY</b> 1:30 PM-5:00 PM	Ecology: Populations 2 Ecology: Conservation 2 Ecology: Aquatic 2 Floristics Microbiology 2 Teaching and Learning 2	Concord A Concord B Concord CD Concord J Concord I Concord GH

WORKSHOPS & SYMPOSIA		
<b>THURSDAY</b> 8:00 AM–5 PM	<b>Workshop:</b> Georeferencing of biological collections data	Fairway A/B
<b>FRIDAY</b> 8:15 AM–NOON  1:30 AM –4:30 PM	<b>Symposium:</b> Collaborations, information technologies and educational tools to build a regional research engine: an update on the SERNEC Herbarium effort  <b>Symposium:</b> Southeastern Symposium on Zebrafish Development and Genetics	Kannapolis A  Kannapolis A
<b>SATURDAY</b> 8:00 AM–NOON  8:20 AM–NOON  NOON–1:30 PM  1:30 PM–2:45 PM	<b>Workshop: Creating a Visual Key—A Case Study in Visual Learning.</b> Bruce Kirchoff, Dept. of Biology, UNC Greensboro ( <i>registration required-24 max cap</i> )  <b>Quillcon II Symposium:</b> Ecology and Evolution of Quillworts ( <i>Isoetes</i> ) in the American South—Quillcon II  <b>Workshop: Education Committee Luncheon</b>  <b>CTI Symposium:</b> Connecting university scholars and classroom teachers for innovative STEM education	Piedmont  Kannapolis A  Blue Ridge  Kannapolis B

<b>βββ EVENTS</b>		
<b>FRIDAY</b> Noon–5:00 PM	<b>Field Trip to SeaLife Aquarium</b> (β β β members only)	Departs from Hotel Lobby
<b>SATURDAY</b> 8:00 AM–NOON	<b>POSTER SESSIONS</b> Set up 8:00 AM–9:00 AM Presenters must be present 9:30 AM–NOON	Concord EF
8:00 AM–6:00 PM	<b>Officers &amp; Judges Room</b>	JHQ Boardroom
9:00 AM–9:30 AM	<b>Joint Business Meeting (all delegates MUST attend)</b>	Fairway AB
1:30 PM–4:00 PM	<b>PAPER PRESENTATIONS</b> District I — District II — District I/II combined	Carolina A Carolina B Carolina C
4:30 PM–5:00 PM	<b>District Session Meetings</b> District I– District II–	Carolina A Carolina B
5:00 PM–6:00 PM	<b>Joint Session and Awards</b>	Fairway A/B

<b>ASB 2016 Field Trips</b>		
<b>THURSDAY</b> March 31 <sup>st</sup>	<b>Redlair Preserve</b> , NC Plant Conservation Program. Leader: Robert Peet (peet@unc.edu, UNC-CH)	Noon–5:00 PM Depart from Convention Center
<b>THURSDAY</b> March 31 <sup>st</sup>	Tour of <b>NC Research Campus</b> Leader: TBA	2:00–4:00 PM
<b>SUNDAY</b> April 3 <sup>rd</sup>	<b>Pee Dee National Wildlife Refuge</b> Leader: Bruce A. Sorrie, Research Associate UNC-Chapel Hill herbarium (basorrie@gmail.com)	9:00 AM–4:00 PM Depart from Convention Center
<b>SUNDAY</b> April 3 <sup>rd</sup>	<b>Worting on the Rocks</b> Quillworts of the NC Piedmont Leaders: Jay Bolin (jfbolin@catawba.edu) and Lytton Musselman (lmusselm@odu.edu)	8:30 AM —2:30 PM Depart From Convention Center



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## Plenary Speaker

### Dr. Reed Noss

**Provost's Distinguished Research Professor  
Pegasus Professor  
Davis-Shine Professor of Conservation Biology  
University of Central Florida, Orlando, FL**

*Fire in the Evolutionary Environment of the Coastal Plain*

**Thursday, March 31 • 7:30 PM–9:00 PM • Concord ABCD**

Reed Noss is Provost's Distinguished Research Professor, Pegasus Professor, and Davis-Shine Professor of Conservation Biology at the University of Central Florida and President of the Florida Institute for Conservation Science. He has a B.S. in Education from the University of Dayton, an M.S. in Ecology from the University of Tennessee, and a Ph.D. in Wildlife Ecology from the University of Florida. He has served as Editor-in-Chief of Conservation Biology (1993–1997), President of the Society for Conservation Biology (1999–2001), and President of the North American Section of the Society (2006–2008). He is an elected Fellow of the American Association for the Advancement



of Science and has served on many boards and advisory panels, including the Board of Governors of the Society for Conservation Biology, the Board of Trustees of the Florida Chapter of The Nature Conservancy, and Florida's Acquisition and Restoration Council. He recently served as Vice-Chair of a Federal Advisory Committee for the U.S. Climate Change Science Program.

Professor Noss has more than 300 publications and is recognized as one of the 500 most highly cited authors in all fields worldwide. He has published seven books, the most recent being *Forgotten Grasslands of the South: Natural History and Conservation* (2013, Island Press). He is currently writing books on the fire ecology of Florida and the lower Southeastern Coastal Plain (University Press of Florida) and on natural disturbance as a primary factor that structures ecosystems (Island Press). We are delighted to welcome Reed as our Plenary Speaker for ASB 2016. <sup>CS</sup>

## **Transportation and Parking at the Embassy Suites Hotel**

**5400 John Q. Hammons Drive NW, Concord, NC, 28027,**

**USATEL: +1-704-455-8200 • FAX: +1-704-455-8201**

### **HOTEL PARKING**

Parking is available on-site for attendees and guests. There is no  
valet parking.

Handicap parking is available on site.

## **Friday Night Social**

**6:00 PM to 11:00 PM**

**Discovery Place, Charlotte, NC**

Our Social event this year will be held at the Discovery Place in Charlotte. There will be live music, drinks and an exhibition of Gunther von Hagen's "*Body Worlds and the Cycle of Life*."

Because this venue is 15 miles (20 minutes) from the Embassy Suites Conference Center and Hotel and parking is limited at the museum, we are providing transportation in the form of motor coaches.

***The main group of buses will leave from the Embassy Suites at 6:00 PM.***

Attendees who stay at the Marriott Courtyard overflow hotel, which is 0.2 miles from the Embassy Suites will also need to leave from the Embassy Suites. There will, however, be opportunities to come to the social late and leave early. For the duration of the event, a mini bus will be on constant rotation with no set schedule—as the mini bus fills it will leave accordingly and come right back.

Your safety is our concern so we strongly encourage anyone who might drink alcoholic beverages to use the transportation we are providing. We will not be responsible for impaired drivers who attempt to use their own vehicles. ☺

## Eagle Hill Institute Journals

### The two official journals of ASB . . .

The Southeastern Naturalist covers aspects of the biology and ecology of terrestrial, freshwater, and marine organisms and the environments of the southeast United States.



[www.sebiologists.org/publications](http://www.sebiologists.org/publications) ... [www.eaglehill.us/sena](http://www.eaglehill.us/sena)

The Eastern Biologist covers laboratory-based biological research including but not limited to biochemistry, biotechnology, cell biology, developmental biology, evolution, genetics and genomics, immunology, microbiology, neurobiology, parasitology, physiology, and toxicology.



[www.sebiologists.org/publications](http://www.sebiologists.org/publications) ... [www.eaglehill.us/ebio](http://www.eaglehill.us/ebio)

For ASB members with Caribbean research interests ... [www.eaglehill.us/cana](http://www.eaglehill.us/cana)



For ASB members with urban research interests ... [www.eaglehill.us/urna](http://www.eaglehill.us/urna)



### Silent Auction

The silent auction was established in 2006 to raise money to help defer travel costs for graduate student members presenting papers or posters at the ASB Annual Meeting. Since 2006, ASB has granted more than \$35,000 to qualifying students. Of that, the silent auction has added over \$11,000 (36%) to the graduate student travel fund. Donated items include books, handcrafts, memorabilia, nature photography, t-shirts, gift baskets, gift cards, jewelry, wine, fishing tackle, insect nets, and much more.

*For those that have items to donate to the silent auction, please bring your donation to the Silent Auction Area in the Exhibit Hall before 10:00 am on Friday, April 1, and one of the committee members will be available to receive it.*

We want to thank you for participating in this worthwhile event. If you have any questions, please feel free to contact one of the Committee Members below.



Patricia Cox

***and the Fabulous Silent Auction Sisters***

Kim Marie Tolson

Pat Parr

Eloise Carter

Bonnie Kelley

Diane Nelson

## Field Trips

### βββ Field Trip • Trip to Sealife Aquarium 12:00 Noon–5:00 PM • Friday, April 1

#### ***Open only to Tri-Beta Members***

Trip leader: **Lee Sutton** (SUTTONLE@ecu.edu)

**Departs:** from lobby of Embassy Suites

## ASB Field Trips

### **Redlair Preserve, North Carolina Plant Conservation Program**

**Leader:** Robert Peet (peet@unc.edu, UNC-CH)

[Possible assistant leaders: Rob Evans (VA Heritage), Jessica Richmond (PCP), Haywood Rankin]

**Maximum Participants:** 30

**Fee:** \$10

**Date:** Thursday, March 31

**Travel:** Car pool. Alternatively, participants coming to ASB from west of Charlotte could meet at the preserve (contact the trip leader).

**Depart:** Depart Concord Convention Center at 12:00. Assemble at Redlair and start hike at 1:00. Depart Redlair at 4:00. Arrive back at Convention Center by 5:00. [Note that if there is an important ASB event that starts prior to 5:30, we could shift all times back 30 minutes.]

**Information:** maps, plant list, etc.: <http://redlair.org>

**Description:** The Redlair Plant Conservation Preserve is an area of approximately 750 acres and is part of a larger 1200-acre protected area. The primary reason for creation of the preserve is that it contains the largest population of the regionally rare *Magnolia macrophylla* on the Atlantic slope. In addition, it contains one of the very few healthy populations of the federally endangered *Helianthus schweinitzii* in a natural habitat. The preserve borders a four-mile stretch of the free-flowing South Fork of the Catawba River and has complex topography, many different natural communities in excellent condition and over 450 species of vascular plants.

### **Tour of NC Research Campus**

**Date:** Thursday, March 31, 2-4pm

**Participant Cap:** 15

**Fee:** \$10

**Travel:** Ample free parking is provided at the research campus and this is just a short drive north of the convention center.

**Description:** Travel 20 minutes from Embassy Suites for an overview of the NC Research Campus, a public-private research center focused on human health,

nutrition and agriculture. Tour the facilities, learn about the research programs and find opportunities to collaborate with scientists from UNC Chapel Hill, NC State, UNC Charlotte, Appalachian State, NC A&T, NC Central, UNC Greensboro and Duke University. You can learn more about the NC Research Campus by visiting [www.ncresearchcampus.net](http://www.ncresearchcampus.net).

### Conservation Committee Service Field Trip at Carolina Raptor Center

**Date:** Thursday, March 31, 8:30am-2pm

**Participant Cap:** 20

**Fee:** None

**Travel:** A van will be departing from the Concord Convention Center at 8:30am.

**Description:** The Conservation Committee is hosting a service field trip for ASB 2016 in Concord, NC. Our idea is to work with the Carolina Raptor Center (<http://www.carolinaraptorcenter.org/>) for a half day and a field trip half day. The field trip attendees would provide volunteer effort to do some basic upkeep around the CRC (fence repair, weeding, removal of invasives, planting natives, etc...), which is critical to their ongoing conservation efforts, as well as be shown the Center behind-the-scenes by CRC staff.

### Pee Dee National Wildlife Refuge

**Leader:** Bruce A. Sorrie, Research Associate UNC-Chapel Hill herbarium ([basorrie@gmail.com](mailto:basorrie@gmail.com)); Assistant leader J.D. Bricken, Refuge Manager

**Maximum Participants:** 25

**Fee:** \$10

**Date:** April 3, 2016 Sunday

**Travel:** Car pool. We will make several stops by vehicle on the refuge, walking out from each. So, the fewer cars we have the better for all.

**Time:** Depart Concord Convention Center at 9:00 am. Assemble at PDNWR headquarters on rte. 52 S of Ansonville, Anson County, at 10:15. After restroom stop, begin driving on refuge at 10:30. Lunch onsite; provide your own food & drink to eat in field. Depart refuge at 2:30; arrive back at Convention Center at 3:45.

**Information:** maps, etc.: [http://www.fws.gov/refuge/pee\\_dee/](http://www.fws.gov/refuge/pee_dee/)

**Description:** Pee Dee National Wildlife Refuge straddles the Pee Dee River in Anson and Richmond Counties in the lower piedmont of NC. Originally created to protect wintering waterfowl, the refuge has also become noted for its high quality and/or rare plant communities. We will visit the broad floodplain of Brown Creek, a nationally significant example of a bottomland forest. Adjacent to an ancient oxbow, we will search for spring wildflowers on mesic slopes. After lunch, we will spend time in a G1 wet pine flatwoods community that harbors dozens of species of coastal plain origin. It is being restored with periodic controlled burns.



**Working on the Rocks: Quillworts of the North Carolina Piedmont**

**Trip Leaders:** Jay Bolin ([jfbolin@catawba.edu](mailto:jfbolin@catawba.edu)) and Lytton Musselman ([lmusselm@odu.edu](mailto:lmusselm@odu.edu))

**Participant Cap:** 14

**Fee:** \$5

**Date:** Sunday, April 3

**Departure:** Sunday April 3, 8:30am from the Concord NC Convention Center return by 2:30pm (van provided).

**Description:** This field trip is affiliated with the Quillcon II Symposium but all field biologists are welcome. We will explore the quillwort and plant diversity of the central piedmont of NC, including granite rock outcrop plant communities, forested wetlands, and the Uwharrie mountains. The field trip concludes with a Lexington-Salisbury style Carolina barbecue lunch on the peak of Morrow Mountain (chicken and pork; please bring \$10 cash for the cost of lunch).

**Uwharrie National Forest**

**Leader:** Alan S. Weakley, Director, UNC Herbarium (NCU), NC Botanical Garden, UNC-Chapel Hill ([weakley@unc.edu](mailto:weakley@unc.edu))

**Maximum Participants:** 30

**Fee:** \$10

**Date:** Sunday, April 3, 2016

**Travel:** Car pool. We will make several stops by vehicle on the Forest, walking out from each. So, the fewer cars we have the better for all.

**Time:** Depart Concord Convention Center at 9:00 am. Lunch onsite; provide your own food & drink to eat in field. Arrive back at Convention Center at 5:30.

**Description:** Uwharrie National Forest contains some of the best remnants of well-managed Piedmont biodiversity between New Jersey and Alabama. The Uwharrie Mountains geologically represent an island arc and African terranes welded onto the North American Plate in continental collisions, and encompass a microcosm of modern Piedmont communities, with areas of rugged and subtle topography, a diversity of rock types varying from mafic to felsic, fire-maintained xeric slopes and ridges, mesic slopes, bogs, depression swamps, river corridors, and an admixture of Coastal Plain, montane, and piedmontane floristic elements. We will aim (in a long and busy day) to see Piedmont longleaf pine savannas, steep-slope shortleaf pine and oak woodlands on contrasting felsic and mafic substrates, "Piedmont prairie" endemics, depression swamps with breeding amphibians, rich slopes with spring ephemerals, and scour glades with rare endemic species.

## Oral Presentations

See the Presentation Abstracts published separately for complete authors listing with affiliations.

### Friday AM, April 1<sup>st</sup>

Time	Ecology: Communities 1 Concord A	Ecology: Physiological Concord B	Invertebrate Biology Concord CD	Cell and Molecular Biology 1 Concord I	Systematics 1 Concord J	SERNEC Herbarium Symposium Kannapolis A
8:15 AM						[47] Zack E. Murrell • Update on SERNEC: Key to the Cabinets, History, Progress and Challenges
8:30 AM	[1] Emily Ann Galloway, David B. Vandermaast • Setting Ecological Parameters for Defining a Forest of Continuity	[10] Zachary B. Griffin et al. • Accumulation of Cobalt in <i>Nyssa sylvatica</i> From the Buck Creek Serpentine Barren (Clay County, NC)	[19] Olivia A. Howell et al. • Stable Isotope Analysis Reveals Differences in Trophic Niche of Arachnids in Field and Forest Sites	[28] Mary K. Murray et al. • Cytotoxic Effects of <i>Amorpha fruticosa</i> Leaf, Stem, and Root Extractions on PC-12 Adrenal Neural Cells From Male <i>Rattus norvegicus</i>	[37] Whitaker M. Hoskins et al. • A Study in Cinnabarina-Scarlet: Novel Collection of <i>Trametes</i> fungus from Tennessee	[48] Emily L. Gillespie • The Marshall University Herbarium: A Model for Engaging Student Curators in Small Herbarium Digitization Efforts
8:45 AM	[2] Dennis D. Tarasi • Biotic and Abiotic Community Changes With Species Invasions	[11] Mary Jane Carmichael, William K. Smith • Growing Season Ecophysiology of <i>Taxodium distichum</i> (L.) Rich. (Bald Cypress) Saplings in a Restored Wetland: A Baseline for Restoration Practice	[20] Juan P. Aristizabal et al. • Experimental Biology in Vietnam: A Survey of Pollinating Flies and Bees around Flower Resources Using Multiple Trap Methods	[29] J. Logan Bowling et al. • Filtering of Transient and Low-Level Mitochondrial Damage Signals by the PINK1:Parkin Mitophagy Pathway	[38] Andrew P. Hart et al. • Molecular phylogenetic analysis of the north-temperate Labrador teas ( <i>Rhododendron</i> Subsection <i>Ledum</i> ) reveals a likely East Asian biogeographic origin and North American taxa of hybrid origin	[49] Carol Ann McCormick • DWG's, Poor Penmanship, and Posthumous Slaps: Georeferencing Herbarium Specimens With Cryptic Labels
9:00 AM	[3] Thomas G. Green, Laura E. DeWald • Relationships Between Woody Species Functional Traits and Structure With Distance Into Harvested Openings	[12] J. Melissa Hernandez-Moreno et al. • Clouds Increase Within-Crown Light Penetration and Homogenize Shoot Temperatures, Evapotranspiration, and Photosynthesis in <i>Abies fraseri</i>	[21] Josiah S. Williams et al. • Female Sexual Function Among Parthenogenesis-Inducing <i>Wolbachia</i> -Infected <i>Trichogramma</i> Wasps	[30] Nelly Grigorian, Christopher D. Barton • A Study of the Role of P53 in the Regulation of MARCKS Expression	[39] Lane D. Gibbons, Conley K. McMullen • A Morphometric Analysis Offers Additional Insights on Intraspecific Variation in <i>Eleocharis tenuis</i> (Cyperaceae)	[50] Jason H. Best • Digitization Workflow Automation at BRIT

Time	Ecology: Communities 1 Concord A	Ecology: Physiological Concord B	Invertebrate Biology Concord CD	Cell and Molecular Biology 1 Concord I	Systematics 1 Concord J	SERNEC Herbarium Symposium Kannapolis A
9:15 AM	[4] Michael S. Hooker • The Effect of Road on Community Structure by Changing Seed Dispersal Patterns	[13] Tyler J. Pyle et al. • Similarity of Pair Behavior Influences Reproductive Success in Wild Breeding Tree Swallows	[22] Peter M. Schlueter, Mark A. Schlueter • An Assessment of Apple ( <i>Malus domestica</i> ) Pollination by Native Bees	[31] Jeff King, Christopher D. Barton • Effect of p53 Status on S100A13 Expression in Response to Oxidative Stress	[40] Samantha J. Worthy et al. • Phylogenetic Analysis of Andean Tree Communities Along an Elevational Gradient in Ecuador	[51] Brad R. Ruhfel • The "Key to the Cabinets" Opens Many Doors
9:30 AM	[5] Nicholas P. Flanders et al. • The Role of Generalist Avian Frugivores in Determining the Distribution of the Mistletoe <i>Phoradendron leucarpum</i>	[14] Kristen R. Content et al. • Repeatability of Stress Physiology and Nest Defense Behavior in Tree Swallows ( <i>Tachycineta bicolor</i> )	[23] Edward B. Mondor • Insects and Death: Forensic Entomology in Georgia	[32] Jasmin Mohn, Christopher D. Barton • Investigation Into the Regulation of CST6 by P53 Following Cellular Stress	[41] M. Taylor Perkins, Joey Shaw, J. Hill Craddock • Phylogeographic Examination of <i>Castanea</i> Morphotypes in the Eastern United States	[52] Andrea Weeks • Data Redaction for Virginia-Collected Herbarium Specimens on Symbiota: Developing a Consensus Among Stakeholders
9:45–10:45	BREAK for Posters, Exhibitors, and Coffee ASB Poster Session 1 (# 1-157, odd numbered posters presented) - Concord EF					
10:45 AM	[6] Christopher J. Payne, Robert K. Peet • Analyzing Long-Term Forest Dynamics in a North Carolina Piedmont Forest Using Permanent-Sample Plots	[15] Amanda S. Williard et al. • Effects of Temperature on Metabolism and Osmotic Balance in the Estuarine Diamondback Terrapin	[24] Victor R. Townsend, Jr. et al. • Leg Injuries and Wound Healing in the Arboreal Neotropical Harvestman <i>Cynorta marginalis</i> (Opiliones, Cosmetidae)	[33] Taeler Dahm, Christopher D. Barton • p53 Mediated Regulation of CCNH in Response to Paclitaxel-Induced Mitotic Stress	[42] Kylie Bucalo et al. • Evaluating the Evolutionary and Genetic Relationships of the Andean Orchids of Northwestern Ecuador	[54] Nelson E. Rios, Henry L. Bart • Engaging the Group in Georeferencing Using GEOLocate
11:00 AM	[7] Jaclyn N. Inkster, Claudia L. Jolls • A Federally Threatened Great Lakes Dune Endemic Thistle Is an Important Floral Resource for Insect Visitors	[16] open	[25] Lori Tolley-Jordan et al. • A Survey of Freshwater Snails and Their Trematode Parasites in the Wheeler National Wildlife Refuge, AL	[34] Vian Pulous, Christopher D. Barton • Transcriptional Regulation of RGS2 by P53 in Colorectal Cancer Cells	[43] Cassandra H. Karlsson et al. • Taxonomic Re-Evaluation of <i>Eryngium yuccifolium</i> (Rattlesnake-Master; Apiaceae)	[55] Michael W. Denslow et al. • Notes From Nature and SERNEC: Leveraging a Citizen Science Tool for Large-Scale Digitization of Herbarium Labels

[illegible]

## Friday PM, April 1

Time	Ecology: Communities 2 Concord A	Ecology: Ecosystems Concord B	Herpetology Concord CD	Cell and Molecular Biology 2 Concord I	Systematics 2 Concord J	Zebrafish Symposium Kannapolis A
1:30 PM	[59] Matthew J. Heard • Examining How Multiple Types of Disturbance Interact to Influence Native and Exotic Plant Coexistence	[69] Margaret A. Small, David B. Vandermast • Environmental and Soil Characteristics of Elon University Forest	[76] Steven Gardner et al. • Assessing Differences in Toxicity and Teratogenicity of Three Phthalates, Diethyl phthalate, Di-n-propyl phthalate, and Di-n-butyl phthalate, Using <i>Xenopus laevis</i> Embryos	[86] Gabrielle A. Hayes et al. • Methylglyoxal Potentiates the Effect of Linezolid Against <i>Staphylococcus aureus</i>	[95] Charles L. Kimmel et al. • Guide to the Vascular Flora of William B. Umstead State Park (North Carolina)	[105] Tessa Shupe, Lori L. McGrew • The Effects of Bupropion on the Working Memory of Anxious <i>Danio Rerio</i>
1:45 PM	[60] Laura Horton, A. Darlene Panvini • Abundance of Earthworms Relative to Leaf Litter Mass and Exotic Plant Coverage	[70] Katelyn Walters, Heather P. Griscom • Prioritizing Eastern Hemlock Trees for Secondary Imidacloprid Treatment in Shenandoah National Park	[77] Annalee M. Tutterow et al. • Landscape-Level Factors Affecting Bog Turtle Populations in North Carolina	[87] Andrew C. Bellemer • Cellular and Molecular Mechanisms of Sensory Neuron Function in <i>Drosophila melanogaster</i>	[96] Amanda L. Faucette et al. • Guide to the Vascular Flora of Buxton Woods (Dare County, North Carolina)	[106] Ted Zerucha • Characterization of the <i>Meis2</i> Locus
2:00 PM	[61] Ayda Porkar-Rezaeieh, A. Darlene Panvini • Biomass and Diversity of Earthworms is Affected by Presence of Exotic Shrubs	[71] James A. Vance et al. • The Use of Google Maps and Street View to Facilitate Analysis in a Wildlife Vehicle Collision Study	[78] Kathryn M. Greene et al. • The Effects of Conspecifics on Burrow Selection in Juvenile Spotted Salamanders ( <i>Ambystoma maculatum</i> )	[88] Chase Mackey, Nick Ragsdale • Circadian Rhythm Dependence of Habituation in <i>C. elegans</i>	[97] Thomas S. McFadden, Brad R. Ruhfel • Documenting the Flora of Eastern Kentucky University's Natural Areas Using the SERNEC Symbiota Portal	[107] Mary Kinkel • The Role of Wnt/Beta-Catenin Signaling for Pancreatic Endoderm Development
2:15 PM	[62] Katlin Stodard, A. Darlene Panvini • Decomposition of <i>Acer saccharum</i> and <i>Lonicera maackii</i> Leaf Litter in a First Order Stream	[72] Adrienne F. Boucher et al. • Effects of the Urban Heat Island on Anurans in Remnant and Stormwater Control Ponds in the Charlotte Metropolitan Region	[79] Heather L. Maher, David S. McLeod • Using Geomorphometrics to Understand the <i>Limnodynastes kuhlii</i> Complex	[89] Dora Geving, Nick Ragsdale • Implications of Parkinson's Disease in Nematodes Treated With the Insecticide Permethrin	[98] Raymond O. Flagg, Gerald L. Smith • Clarifying Taxonomic Confusion in Some Mexican <i>Zephyranthes</i> (Amaryllidaceae)	[108] Linda M. Niedziela • Oil Dispersant Alters Atpase Activity and Gene Expression in Gills and Skin of Zebrafish ( <i>Danio rerio</i> )
2:30 PM	[63] Sara Haney, A. Darlene Panvini • The Effects of Exotic Earthworms and Exotic Plants on Soil Invertebrate Abundance and Diversity	[73] Anna J. Markey et al. • The Effect of Human-Made Ambient Noise on the Pitch of Bird Vocalizations	[80] Thomas K. Moore et al. • From Microscale to Macroscale: Field and GIS analysis of gopher tortoise ( <i>Gopherus polyphemus</i> ) burrows on Cumberland Island National Seashore	[90] Miranda West, Nick Ragsdale • Potential Protective Effects of Nicotine in <i>C. elegans</i> Treated with 6-OHDA	[99] Raymond O. Flagg et al. • Sister Relationships Among the US Southeastern <i>Zephyranthes</i> species (Amaryllidaceae)	[109] Bonny B. Millimaki et al. • Inhibition of Top2 in Zebrafish Results in Axon Guidance Defects by Modifying Expression of Chemotactic Genes

Time	Ecology: Communities 2 Concord A	Ecology: Ecosystems Concord B	Herpetology Concord CD	Cell and Molecular Biology 2 Concord I	Systematics 2 Concord J	Zebrafish Symposium Kannapolis A
2:45–3:45	<b>BREAK for Posters, Exhibitors, and Coffee</b> <b>ASB Poster Session 2 (# 1-157, even numbered posters presented) Concord EF</b>					
3:45 PM	[64] G. Neil Douglas et al. • Prey Remains in Barn Owl ( <i>Tyto alba</i> ) Pellets Collected in 1997 From a Silo Roost in Harrogate, Tennessee	[74] Sara A. Gagné et al. • The Effects of Road and Landscape Characteristics on the Likelihood of a Barred Owl ( <i>Strix varia</i> )-Vehicle Collision	[81] Thomas K. Moore et al. • Population Dynamics of Gopher Tortoises ( <i>Gopherus polyphemus</i> ) on Cumberland Island National Seashore on the most Southern Barrier Island of Georgia	[91] Zara Latif, Nick Ragsdale • The Utilization of Obese Worms to Investigate the Link between Parkinson's Disease and Obesity	[100] Open	[110] Courtney M Bouldin • Quiescence is a Critical Feature of the Multipotent Cells That Form the Zebrafish Body
4:00 PM	[65] Chris J. Peterson • Intermediate Disturbance Severity Yields Maximal Structural Complexity: An Alternative Mechanism for the Intermediate Disturbance Hypothesis?	[75] Alexandra V. Shoffner et al. • The Relative Impacts of Habitat Amount, Habitat Configuration, and Urbanization on Forest Breeding Birds	[82] Carlos D. Camp, Jessica A. Wooten • Genetic Interaction between two Cryptic, Parapatric Species of Two-lined Salamander ( <i>Eurycea bislineata</i> complex) along their Zone of Contact	[92] Danielle Aument, Nick Ragsdale • Utilization of Alpha-Lipoic Acid as an Antioxidant in the Presence of 6-OHDA	[101] Ramhari Thapa et al. • Reconstruction of Phylogenetic Relationship in <i>Antennaria</i> (Asteraceae) Using Data From Hundreds of Loci	[111] Cindy Achat-Mendes • Examining zebrafish behaviors to investigate the polydrug effects of nicotine and alcohol
4:15 PM	[66] Joe E. Winstead, Michael E. Held • Exceeding 100 Years in Age an Oak–Hickory Forest in East Central Mississippi Challenges Contemporary Basal Area Concepts	[234] Jessica L. Allen, James C. Lendemer • The Impacts of sea-level rise on coastal biodiversity: A case study in the Mid-Atlantic Coast Plain	[83] Scott P. Jones, David R. Chalcraft • Fear, Competition, and Time: The Interaction of Predation, Competition, and Phenology on Treefrog Morphology and Life-History	[93] Elizabeth Quamme, Eric E. Johnson • Expression Analysis of Centrin During Spermatogenesis in the Model Moss <i>Physcomitrella patens</i>	[102] Charles N. Horn • A Review of the Morphological Distinction Between Two Azalea Species: <i>Rhododendron calendulaceum</i> and <i>R. cumberlandense</i> (Ericaceae)	[112] V. McNeil Coffield • Exposure to estrogenic compounds alters the rate of calcium incorporation during early bone development in <i>Danio rerio</i> .
4:30 PM	[67] Timothy O. Menzel • Providing a Complete Picture of Competition Between Two Ant Species, <i>Aphaenogaster carolinensis</i> and <i>Nylanderia faisonensis</i>		[84] Walter H. Smith et al. • Are Green Salamanders as Rare as We Assume? Adapting Citizen Science to Address Data Deficiency in <i>Aneides aeneus</i> Across the Cumberland Mountains of Virginia	[94] Sunada Khadka, Holly B Tong • The Effect of All Trans Retinoic Acid on Collagen Production by Uterine Smooth Muscle Cells	[103] Christopher P. Randle et al. • Diversity and Subspecific Taxonomy of <i>Phoradendron leucarpum</i> (Raf.) Reveal & M. C. Johnston. (Leafy Mistletoe)	



Time	Ecology: Communities 2 Concord A	Ecology: Ecosystems Concord B	Herpetology Concord CD	Cell and Molecular Biology 2 Concord I	Systematics 2 Concord J	Zebrafish Symposium Kannapolis A
4:45 PM	[68] Dwayne Estes • A revolutionary new hypothesis to explain biogeographic disjunctions in the unglaciated eastern United States		[85] Shem D. Unger, Rod Williams • Filial Cannibalism and Body Condition of the Eastern Hellbender <i>Cryptobranchus alleganiensis alleganiensis</i>		[104] Harvey E. Ballard, Jr. et al. • Reinventing Taxonomy for the Acaulescent Blue Violets ( <i>Viola</i> subsect. <i>Boreali-Americanae</i> ), or, There are a Lot More Species Out There Than We Thought	

## Saturday AM, April 2

Time	Ecology: Populations 1 Concord A	Ecology: Conservation 1 Concord B	Ecology: Aquatic Biology 1 Concord CD	Microbiology 1 Concord I	Teaching and Learning 1 Concord GH	Quillcon II Kannapolis A
8:20 AM						[159] Lytton J. Musselman, Jay Bolin • Greeting and Welcome
8:30 AM	[113] Lauren E. Whitehurst • Determining the Effects of Herbivory on an Herbaceous Plant, American Bellflower ( <i>Campanulastrum americanum</i> L.)	[123] Jamie M. Herold • Native Landscaping at Oak Ridge National Laboratory	[133] Marina N. Osier, Risa A. Cohen • Combined Effects of a Flame Retardant and Ammonium on Plankton Community Structure in Blackwater Pond Mesocosms	[141] Michael A. Schoonover et al. • A Survey of Bacterial Biodiversity and Lipid Content within Raccoon Mountain Caverns	[149] Christopher D. Barton • A Model for Interprofessional Collaboration That Promotes Student Learning and Faculty Development in Undergraduate Anatomy and Physiology Courses	[160] W. Carl Taylor • Species Evolution and Phylogeny of <i>Isoetes</i>
9:00 AM	[115] Alexandria N. Albers et al. • Differences in Intra- Versus Inter-Specific Competition May Drive Behavioral Differences in Bluebird Populations	[125] Sean K. Binninger, Laura E. DeWald • Herb Abundance and Diversity among Fire Severities in Pine-Oak Forests of Great Smoky Mountains National Park	[135] Aaron Q. Hite, Tom A. Blanchard • The Initial Response of a Benthic Macroinvertebrate Assemblage to a Stream Re-Channelization Project in Northwest TN	[143] Abigail V. Nails, Jennifer D. Hayden • Cellular Processes in <i>Mycobacterium smegmatis</i> Are Regulated by Lysine Acetylation	[151] Christopher D. Barton, A. Darlene Panvini • Promoting Student Well-Being in STEM Through Community and Civic Engagement	[161] Lytton J. Musselman et al. • Rhizomorphs, Scales, and Sporelings of <i>Isoetes</i>

Time	Ecology: Populations 1 Concord A	Ecology: Conservation 1 Concord B	Ecology: Aquatic Biology 1 Concord CD	Microbiology 1 Concord I	Teaching and Learning 1 Concord GH	Quillcon II Kannapolis A
9:00 AM	[115] Alexandria N. Albers et al. • Differences in Intra- Versus Inter-Specific Competition May Drive Behavioral Differences in Bluebird Populations	[125] Sean K. Binninger, Laura E. DeWald • Herb Abundance and Diversity among Fire Severities in Pine-Oak Forests of Great Smoky Mountains National Park	[135] Aaron Q. Hite, Tom A. Blanchard • The Initial Response of a Benthic Macroinvertebrate Assemblage to a Stream Re-Channelization Project in Northwest TN	[143] Abigail V. Nails, Jennifer D. Hayden • Cellular Processes in <i>Mycobacterium smegmatis</i> Are Regulated by Lysine Acetylation	[151] Christopher D. Barton, A. Darlene Panvini • Promoting Student Well-Being in STEM Through Community and Civic Engagement	[161] Lytton J. Musselman et al. • Rhizomorphs, Scales, and Sporelings of Isoetes
9:15 AM	[116] Ray S. Williams, Megan Avakian • Terpenes and Genotype Choice by a Specialist Aphid in the Old-Field Plant Species <i>Solidago altissima</i>	[126] Erika M. Dietrick, Claudia L. Jolls • How Does Temperature Affect Germination and the Seed Bank Potential of <i>Thalictrum cooley?</i>	[136] Ted F. West III, Matthew N. Waters • Spatial and Temporal Phytoplankton Dynamics in Response to Environmental and Anthropogenic Stressors in Lake Seminole, GA	[144] Phoebe Parrish et al. • The Multifactorial Role of the Phytotoxin Coronatine in Plant Disease in <i>Nicotiana benthamiana</i>	[152] John H. Niedzwiecki • Teaching the Value of Sustained Observation: A Multiweek Research Experience in Animal Behavior at the Zoo	[162] Jay F. Bolin, Carmony L. Hartwig • Using flow Cytometry to Aid Species Delimitation in <i>Isoetes</i>
9:30 AM	[117] José Garrido, Ray S. Williams • Terpene Production in <i>Solidago altissima</i> in Response to Aphid Herbivory	[127] Erin E. Fegley, Claudia L. Jolls • Modeling Herbivory to Predict Population Viability of a Rare, Monocarpic Perennial (Pitcher's Thistle)	[137] Devin N. Kinney, Amber A. Burgett • Effects of Roundup and Reduced Hydroperiod on the Behavioral Response of <i>Hyla versicolor</i> Tadpoles to Predator	[145] Regina A. Bledsoe et al. • Response of the Soil and Rhizosphere Microbiome to Long-Term Fertilization	[153] Nicole T. Welch • Pulling Out All of the Stops to Teach the Basics of General Ecology to a Changing Student Population	[163] Elizabeth A. Zimmer et al. • DNA Sequences Identify Cryptic Species of Quillworts ( <i>Isoetes</i> L.)
9:45–10:45	<b>BREAK for Posters, Exhibitors, and Coffee</b> <b>ASB Poster Session 3 (# 158-274, odd numbered posters presented)</b> <b>βββ Posters (#275-313)</b> <b>Concord EF</b>					
10:45 AM	[118] Ashley M. Hawk, Laura E. DeWald • Comparing Maxent and DOMAIN Habitat Suitability Modeling for a Rare Plant Species	[128] Angela Monetta et al. • Bird Diversity in Two Habitats at Georgia Gwinnett College	[138] Thomas A. Hess, Lori Tolley-Jordan • Do Fish Elicit Behavioral Responses of Macroinvertebrates in Small Streams of the Bankhead National Forest, Alabama?	[146] Tyler Wilson, Patrick A. Vigueira • Synergistic Effect of Amoxapine and β-Lactam Antibiotics Against MRSA	[154] Oluwaseun O. Agboola, Anna C. Hiatt • Improving Student Success in Introductory Biology: The Use of Summative Assessment as an Inclusive Practice	10:40 AM [164] Felix Grewe et al. • The Molecular Evolution of the Organellar Genomes of <i>Isoetes</i> : A Phylogenetic Perspective

[illegible]

## Saturday PM, April 2

Time	Ecology: Populations 2 Concord A	Ecology: Conservation 2 Concord B	Ecology: Aquatic Biology 2 Concord CD	Floristics Concord J	Microbiology 2 Concord I	Teaching and Learning 2 Concord GH	CTI STEM Education Symposium Kannapolis B
1:30 PM	[168] Madison A. Williams et al. • Variation in Carotenoid Concentrations of House Sparrow ( <i>Passer domesticus</i> ) Eggs Across the Laying Sequence	[173] Clifton B. Ruehl, Troy Keller • Introduced Island Apple Snails ( <i>Pomacea maculata</i> ) in Western Georgia	[183] Alexandria Jeffers, A. Darlene Panvini • Water Quality and Macroinvertebrate Diversity in Closed-Canopied and Open-Canopied Sections of an Urban Stream in Nashville, TN	[191] Jennifer R. Mandel et al. • Using Phylogenomics to Resolve Mega-Families: An Example From Compositae	[201] Henry G. Spratt, Jr. et al. • Incidence of Bacterial Contamination in a Hospital's Neonatal Intensive Care Unit	[209] Jennell M. Talley, Rebekah Ward • Use of Creative Writing to Encourage Students to Address Their Misconceptions in Genetics	[219] Jennifer Thompson • From the Merman to the Weatherman: The Evolution of Weather Prediction  [220] Connie Wood • Metamorphosis—Triggers of Transformation
1:45 PM	[169] Austin W. Brenek, Christopher P. Randle • Assessment of Reproductive Health in Marginal Populations of Buffalonut ( <i>Pyrularia pubera</i> ), a Dioecious Parasitic Shrub	[174] Ben F. Chappell, Kevin G. Smith • Selective Predation of Native Reef Fish by Lionfish ( <i>Pterois volitans/miles</i> ) Along the North Carolina Coast	[184] Walter Burn, A. Darlene Panvini • Biodiversity of Macroinvertebrates in A First Order Spring-Fed Stream on the Belle Forest Cave Property, Bellevue Tennessee	[192] Katherine G. Mathews, Danielle Richardson • Cross-Species Microsatellite Amplification in the <i>Trillium erectum</i> Complex	[202] A. Grace Collier et al. • Potential Bacterial Contamination From Lotions and Creams Used for Soft Tissue Mobilization and Massage in Outpatient Rehabilitation Clinics	[210] Victoria A. Burgess et al. • Using Peer Supplemental Instruction in an Introductory Biology Course to Cultivate STEM Competencies	[221] Cindy Woolery • Life Cycles of Animals—Constant Change!  [222] Janet Raybon • The Rest of the Story: A Study of Death, Decomposition and Metamorphosis
2:00 PM	[170] Justin Hendy • Changes in Biogeography of Rare Plant Species Endemic to the Southeastern United States from 2001 to 2015	[175] Patricia D. Parr • Promoting Pollinator Friendly Management on Federal Lands: The Oak Ridge Reservation Example	[185] Sandra L. Cooke • A Comparison of Zooplankton Diel Vertical Distribution During Transparent and Turbid Conditions in a Natural Southern Appalachian Montane Lake	[193] Alexander Krings et al. • Image Sort Creator: A New Web Service for Developing Visual Learning Exercises for Field Courses	[203] Bryan R. Eoff, Nick Ragsdale • <i>Caenorhabditis elegans</i> Response to Hyperglycemic and Hypoxic Conditions Post Infection with <i>Staphylococcus aureus</i>	[211] Candace Timppte et al. • Analysis of Reading Speed and Comprehension in Biology Majors	[223] Rima Solh • Metamorphosis in Mathematical Models  [224] Amy H. Ringwood • [session chair]
2:15 PM	[171] Howard S. Neufeld • The Paris Climate Talks and the 800 lb (363 Kg) Gorilla in the Room: Population Growth as the Root Cause of Global Climate Change	[176] James A. Vance et al. • Species Composition and Temporal Patterns of Road-kills Along Physiographically Distinct Routes in Southwest Virginia	[186] Logan Perkins et al. • The Effect of Stream Restoration on Fish Species Richness and Diversity in the Coastal Plains of West Tennessee	[194] Abigail C. Burrus, Dane Kuppinger • Exploring the Historical and Modern Collections of the Salem College Herbarium	[204] Austin T. Leavell et al. • Microbial Community Dynamics Related to the Function of an Artificial Wetland	[212] Mark A. Schlueter, Boyko Gyurov • Teaching Biology and Mathematics During Field Experiences in a Month-Long Study Abroad Program in Vietnam	

Time	Ecology: Populations 2 Concord A	Ecology: Conservation 2 Concord B	Ecology: Aquatic Biology 2 Concord CD	Floristics Concord J	Microbiology 2 Concord I	Teaching and Learning 2 Concord GH	CTI STEM Education Symposium Kannapolis B
2:30 PM	[172] Christopher Adams et al. • Variation in Dormancy States for Seeds of <i>Calycanthus floridus</i> L.: Does Indefinite Retention in the Fruit Affect Germination Patterns of Seeds?	[177] Nicholas Adams Johnny Randall • Informing the Restoration of Piedmont Savanna Using High Quality Rights-of-Way as Reference	[187] James T. Ragan, Matthew N. Waters • The Environmental and Ecological Change of Cherry Lake, FL, USA, From the Mid-Holocene to Modern Day: Placing Human Impacts in the Context of Natural History	[195] John M. Herr, Jr. • A Comparison of Anatomical Features in Fresh Sections of <i>Coleus blumei</i> Benth. With Sections Fixed in Camoy's Fixative and Stored in 70% Ethanol and Sections Dehydrated, Paraffin Infiltrated and Embedded with Application of the Tertiary Butyl Alcohol Technique or with the Xylene Technique	[205] Dane M. Kuppinger et al. • Assessing the Impact of Coal Ash Exposure on Soil Microbes in the Dan River	[213] Valarie A. Burnett • Incorporating Student-Centered Learning Strategies, Including Flipped Classroom Activities and Course-Embedded Research, Into the Classroom Environment	
2:45-3:45	BREAK for Posters, Exhibitors, and Coffee ASB Poster Session 4 (# 158-274, even numbered posters presented) Concord EF						
Time	Ecology: Conservation Concord B	Ecology: Aquatic Biology Concord CD	Floristics Concord J	Microbiology Concord I	Teaching and Learning Concord GH		
3:45 PM	[178] Michael Kunz et al. • Germination Ecology of the Rare Southeastern Endemic, <i>Amorpha georgiana</i> (Georgia indigobush, Wilber [Fabaceae])	[188] Neil Billington, P. Taylor Ezell • A Comparison of Two Indices of Nitrogen Deficiency in Ponds in Pike County, Southeastern Alabama	[196] Catherine E. Garner et al. • A Comparison of Stem Anatomy in <i>Stachys caroliniana</i> and <i>Stachys floridana</i> Shutlw. and Stem and Leaf Anatomy in <i>S. caroliniana</i> and Four Previously Investigated <i>Stachys</i> species	[206] Chasity Lawless et al. • Nitrogen Fixation Dynamics in <i>Pueraria montana</i>	[214] Roger A Sauterer • Using Ecosystem Jars to Support Inquiry-Based Student Experiments		
4:00 PM	[179] John L. Randall et al. • Propagation and Reintroduction of the Sandhills Lily, <i>Lilium pyrophilum</i> (Liliaceae)	[189] Gary D. Grossman • Long-Term Persistence, Density-Dependence and Effects of Climate Change on Rosyside Dace (Cyprinidae)	[197] Charlie Williams • Retracing André Michaux's Botanical Explorations in the Carolinas and East Tennessee With a Michaux Family Member	[207] Marlan E. Hare, Philip Rock • A Comparison of the Cultivable Bacteria From <i>Wolbachia</i> -Free and <i>Wolbachia</i> -Infected Strains of <i>Drosophila melanogaster</i>	[215] Michael K. Moore, Virginia A. Young • A Redesign of Introductory Biology for Majors: Experimental Implementation of the Supplemental Model of Instruction		

<b>Time</b>	<b>Ecology: Conservation Concord B</b>	<b>Ecology: Aquatic Biology Concord CD</b>	<b>Floristics Concord J</b>	<b>Microbiology Concord I</b>	<b>Teaching and Learning Concord GH</b>
<b>4:15 PM</b>	<b>[180] Sunny A. Fleming et al.</b> • The Use of Species Distribution Models (SDMs) to Guide Surveys for and to Evaluate the Distribution of the Streamside Salamander ( <i>Ambystoma barbouri</i> ) in the Central Basin of Tennessee	<b>[190] Karl H Joplin</b> • Description of the Microbiome of a Model Appalachian Stream	<b>[198] Zach Irick, Joey Shaw</b> • Preliminary Vascular Plant Flora of the Big Soddy Creek Gorge	<b>[208] Jay A. Yoder, Andrew J. Jajack</b> • Preventive Steps for Minimizing Effects of Fungicides (and Pesticides) on Honey Bee Colonies	<b>[216] James R. Rayburn</b> • The Use of Student Response Systems to Increase Student Engagement in Human Anatomy and Physiology Courses at Jacksonville State University
<b>4:30 PM</b>	<b>[181] Kim Marie Tolson et al.</b> • American Alligator Nest Depredation by Feral Hogs		<b>[199] Alan S. Weakley</b> • An Example of What We Still Don't Know About the Southeastern Flora: What Would Sherlock Think About the Confuscated and Combinatorial Case of the Alder on the Mountain?		<b>[217] Melissa M. Fox, Erika S. Niland</b> • Biology Intensive Orientation Seminar (BIOS) Enhances Student Performance in Introductory Biology Courses
<b>4:45 PM</b>	<b>[182] Alvaro Pérez et al.</b> • Diversity and Conservation Assessment for Ecuadorian species of <i>Magnolia</i> L. (Magnoliaceae)		<b>[200] Alan S. Weakley</b> • John and Amos's Excellent Adventure: What Can We Learn 125 Years Later From Their Account About Taxonomic Exploration and Changes in the North Carolina Landscape?		<b>[218] Gary D. Grossman</b> • Innovative Approaches to Fisheries Education

**βββ Paper Presentations • Saturday PM, April 2**

<b>Time</b>	<b>District I Carolina A</b>	<b>District II Carolina B</b>
<b>1:30 PM</b>	<b>[225] Maria Marlin et al.</b> • The Role of Heterotrimeric G-protein signaling in <i>Camelina sativa</i> Growth and Development	<b>[230] Lindsay Millward, A. Darline Parvini</b> • Differences in leaf decomposition rates between invasive exotic <i>Lonicera maackii</i> and native <i>Acer saccharum</i> in a temperate deciduous forest
<b>1:45 PM</b>	<b>[226] Kristy Williams, Costance Rogers-Lowery</b> • Effects of Ocean Acidification on Motility of Coral Larvae	<b>[231] Rachel Pearson, Lauren King</b> • Characterization of neutrophil cell death in response to nontypeable <i>Haemophilus influenzae</i>
<b>2:00 PM</b>	<b>[227] Kyle Macke</b> • Efficacy of alternative contrast agent in anemonefish culture	<b>[232] Jacob Dirkman et al.</b> • Estrogens Effects on the Viability of Astrocyte Cells Exposed to Oxidative Stress
<b>2:15 PM</b>	<b>[228] Louis Penrod</b> • Thermally induced shift in biomechanical performance of the invasive lionfish, <i>Pterois volitans</i>	<b>[233] Tara Burke, Lori Tolley-Jordan</b> • Does a large trematode parasite, <i>Proterometra epholkus</i> , induce mortality on its freshwater snail host, <i>Elimia modesta</i> ?
<b>2:30 PM</b>	<b>[229] Sebastian Martinez</b> • Impacts of urbanization on Anuran species richness	





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## Posters—Concord EF

Friday, Apr 1<sup>st</sup> (ASB Posters 1-157)

TITLE	AUTHORS
<b>ZEBRAFISH SYMPOSIUM</b>	
<b>P1</b> Identification of Genes Involved in <i>Vibrio cholera</i> Colonization of the Zebrafish ( <i>Danio rerio</i> )	<b>Elizabeth A. Villa, Ted Zerucha, Ece Karatan</b> Biology, Appalachian State U, Boone, NC
<b>P2</b> A Simplified Method to Create Transgenic Zebrafish and Drosophila Using Electroporation	<b>Autumn Bass, David Guzman, Karen Guzman</b> Biology, Campbell U, Buies Creek, NC
<b>P3</b> The Role of N-Nitroso-N-ethylurea (ENU) in the Induction of Chromosomal Abnormalities in Zebrafish ( <i>Danio rerio</i> )	<b>Megan M. Sibree, Linda M. Niedziela</b> Biology, Elon U, NC
<b>P4</b> 17 $\beta$ -Estradiol Increases the Rate of Calcium Incorporation During Early Development in <i>Danio rerio</i>	<b>Jimmy Rager, Cailyn Scanlan, Matt Slitzky, Angela Bauer, V. McNeil Coffield</b> Biology, High Point U, NC
<b>P5</b> Resveratrol Alters the Rate of Calcium Incorporation During Early Bone Development in <i>Danio rerio</i>	<b>Matt Slitzky, Cailyn Scanlan, Jimmy Rager, Angela Bauer, V. McNeil Coffield</b> Biology, High Point U, NC
<b>P6</b> Characterization of a <i>Meis2</i> -Linked Gene in Zebrafish	<b>Riley Parr, Tray Neilson, Zach Williams, Caroline Cochrane, Brandon Carpenter, Brantley Graham, Ted Zerucha</b> Biology, Appalachian State U, Boone, NC
<b>P7</b> Characterization of a Highly Conserved Tetrapod Regulatory Element Associated With the <i>Meis2</i> Gene in Zebrafish	<b>Mackenzie Trapp, Hannah Freundlich, Kyle Nelson, Ted Zerucha</b> Biology, Appalachian State U, Boone, NC
<b>P8</b> Characterization of the <i>Meis2</i> Associated Highly Conserved M2de3 Noncoding Element	<b>Laiton Steele, Alicia Ramsaran, Kyle Nelson, Ted Zerucha</b> Biology, Appalachian State U, Boone, NC
<b>P9</b> Characterization of the <i>Meis2</i> Associated Highly Conserved Vertebrate Noncoding Element m2de1	<b>Megan Tennant, Tyler Ferrara, Cody Barrett, Kyle Nelson, Ted Zerucha</b> Biology, Appalachian State U, Boone, NC
<b>P10</b> Human Gut Motility Disorders: Can Larval Zebrafish Provide a Live Animal Model?	<b>Rachel Krizek, Mary Kinkel</b> Biology, Appalachian State U, Boone, NC
<b>P11</b> Onset of Metamorphosis Depends on Body Length, Not Age, for Larval Zebrafish	<b>Kitt Franse, Mary Kinkel</b> Biology, Appalachian State U, Boone, NC
<b>P12</b> The effect of topoisomerase II inhibition on expression of axon pathfinding genes in zebrafish	<b>Mary E. Skrabut, Amanda D. Williams, Bonny B. Millimaki</b> Biology, Lipscomb U, Nashville, TN

<b>P13</b>	Topoisomerase2Inhibition Specifically Effects Axonal Guidance in Zebrafish	<b>Sara M. Stevers, Bonny B. Millimaki</b> Biology, Lipscomb U, Nashville, TN
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### Friday, Apr 1<sup>st</sup> (ASB Posters 1-157)

<b>P14</b>	Comparison of the Anxiolytic Effects of Nicotine and Ethanol on Novelty-Elicited Responses in Zebrafish ( <i>Danio rerio</i> )	<b>Michelle L. Hall, Cindy Achat-Mendes</b> Science & Technology, Georgia Gwinnett College, Lawrenceville
<b>P15</b>	Measuring the Rewarding Effects of Nicotine and Ethanol Polydrug Use in Zebrafish ( <i>Danio rerio</i> )	<b>Maria C. Granada, Cindy Achat-Mendes</b> Science & Technology, Georgia Gwinnett College, Lawrenceville
<b>P16</b>	The Effect of Aspartame and Sugar on the Behavior of Adult and Juvenile Zebrafish	<b>Lenka N. Malec, Linda M. Niedziela</b> Biology, Elon U, NC
<b>P17</b>	The Effect of Top2 Inhibition, With Dexrazoxane, on Zebrafish Neural Development	<b>Abigail Poff, Donnie Pickel, Bonny B. Millimaki</b> Biology, Lipscomb U, Nashville, TN

### DEVELOPMENTAL BIOLOGY and MICROBIOLOGY 1

<b>P18</b>	Temporal, Spatial, and Age Distributions of White-Tailed Deer, <i>Odocoileus virginianus</i> , Killed on Bulloch County Roadways	<b>Mackenzie P. Payne, Edward B. Mondor</b> Biology, Georgia Southern U, Statesboro
<b>P19</b>	The Identification of Environmental Microorganisms that Utilize Bifenthrin	<b>Jaylin Grant, Michelle Thomas, Jamie Garner</b> Biology, Campbell U, Buies Creek, NC
<b>P20</b>	An Examination of Bacteria and Fungi Diversity and Abundance in Different Size Bowling Balls and Shoes	<b>Cathy Huynh, Mark A. Schlueter</b> Science & Technology, Georgia Gwinnett College, Lawrenceville
<b>P21</b>	Bacterial Diversity from Soil of Varying Land Management at Furman University	<b>Neely M. Wood, Min-Ken Liao</b> Biology, Furman U, Greenville, SC
<b>P22</b>	Application of a Multi-Disciplinary One Health Approach to Understanding Environmental Drivers of the Spatial Distribution of Rocky Mountain Spotted Fever	<b>Jingtian Wang<sup>1</sup>, Thomas Hart<sup>1</sup>, Leigh Robertson<sup>2</sup>, Jessie Barnett<sup>2</sup>, John E. Quinn<sup>1</sup>, Min-Ken Liao<sup>1</sup></b> <sup>1</sup> Biology, Furman U, Greenville, SC; <sup>2</sup> Earth & Environmental Science, Furman, Greenville, SC
<b>P23</b>	Isolation and Genomic Annotation of the Novel <i>Bacillus thuringiensis</i> Bacteriophage, Rex16	<b>Sydney Dishman<sup>1</sup>, Suzanne Henderson<sup>1</sup>, Jennifer Easterwood<sup>1</sup>, Kent Rhodes<sup>1</sup>, Michael Wolyniak<sup>2</sup>, Joanna Katsanos<sup>1</sup></b> <sup>1</sup> Queens U of Charlotte, NC; <sup>2</sup> Hampden-Sydney College, VA
<b>P24</b>	Synergistic Effects of Antibiotics, Antimicrobial Peptides, and Neutrophil Phagocytosis Upon <i>Acinetobacter Baumannii</i>	<b>Rowan E. Pitts</b> Biology, College of Letters and Sciences, Columbus State U, GA
<b>P25</b>	Combinatorial Effects of Manuka Honey and Fosfomycin on <i>Escherichia coli</i> , <i>Staphylococcus aureus</i> and Methicillin-Resistant <i>Staphylococcus aureus</i>	<b>Nicole M. Wright, Gabrielle A. Hayes, Patrick A. Vigueira</b> Biology, High Point U, NC
<b>P26</b>	Methylglyoxal Sensitizes <i>Bacillus oleroniensis</i> to Topical Antibiotics	<b>Sarah L. Edmark, Patrick A. Vigueira</b> Biology, High Point U, NC

<b>P27</b>	The Interaction of Antimicrobial Therapeutics with Amoxapine, a Commonly Prescribed Medication	<b>Norbeth E. Dzotele</b> Biology, High Point U, NC
<b>P28</b>	Resistance to Beta Lactam Antibiotics: Development of a Rapid, Paper-based Detection Test	<b>Allison Shelton, Lisa Ann Blankinship</b> Biology, U North Alabama, Florence
<b>Friday, Apr 1<sup>st</sup> (ASB Posters 1-157)</b>		
<b>P29</b>	Investigating the Function of <i>pufQ</i> in <i>Rhodobacter capsulatus</i>	<b>Hannah Mordy, James L. Smart</b> Biology, U of Tennessee at Martin
<b>P30</b>	Manipulating the Cellular Genome of a <i>Francisella tularensis</i> -Infected Cell	<b>Janay F. Franklin, Sharon Taft- Benz, Shaun Steele, Lauren Radlinski, Tom Kawula</b> Microbiology and Immunology, UNC Chapel Hill
<b>P31</b>	Cape Fear River Sediment Reveals Antibiotic-Producing Bacteria	<b>Yancey T. McCoury, Elizabeth A. Brady, Weston R. Walker, Jessica S. Jones, Lauren M. Warzecho, Kevin B. Kiser</b> Biology and Marine Biology, UNC Wilmington
<b>P32</b>	Bacterial Contamination of Commercially Dispensed Iced Tea: A Preliminary Study	<b>Hannah M. White, Lea A. Cennane, C. Brian Odom</b> Biology, Wingate U, NC
<b>P33</b>	Antibiotic Resistance Profiles of <i>S. aureus</i> Isolates Collected From the Noses and Throats of Nursing Students	<b>Zachary P. Johannesson, Ashton L. Honeycutt, Matthew C. Mason, Caroline L. Jones, Aaron T. Kesinger, Nicholas C. Loekman, Kevin B. Kiser</b> Biology and Marine Biology, UNC Wilmington
<b>P34</b>	Evaluating Growth Phases and Virulence Factors Associated with <i>Shigella flexneri</i> 2a Propagation <i>in vitro</i>	<b>Stephanie M. Unkles<sup>1</sup>, Kingsley D. Dunkley<sup>1</sup>, Karen Harris-Shultz<sup>2</sup></b> <sup>1</sup> Biology, Abraham Baldwin Agricultural College, Tifton, GA; <sup>2</sup> USDA, ARS-USDA, Tifton, GA
<b>P35</b>	Evaluation of Sulfate Reducing Bacteria for Salt Tolerance	<b>Patrick Thomase, Kelsey Rodgers, Christiane Ingram, Benedict Okeke</b> Biology, Auburn U at Montgomery, AL
<b>P36</b>	DNA Hybridization Studies and Phenotypic Characterizations of Carbon Source Usage of the <i>Kistimonas</i> Species	<b>Emily A. Linton, Michelle L. Suhan-Thomas</b> Biological Sciences, Campbell U, Buies Creek, NC
<b>CELL and MOLECULAR BIOLOGY 1</b>		
<b>P37</b>	Comparison of Genistein-Induced Apoptosis in T-Cell Leukemia Jurkat and Nonmalignant Lung Fibroblast MRC-5 Cells	<b>Shelby R. Curren<sup>1</sup>, Roslyn Crowder<sup>2</sup></b> Biology, Stetson U, DeLand, FL
<b>P38</b>	Mapping the Sorting Signals of the Cytoplasmic Domain of Atg27	<b>Maria A. Trujillo, Veronica A. Segarra</b> Biology, High Point U, NC
<b>P39</b>	Mitochondrial Identification and Barcoding of <i>Sabal</i> Palms	<b>Natalie Telfeja, Arlety Mendez, Alfredo Leon, Steven Ritter</b> Biology, Miami Dade College, FL
<b>P40</b>	Ki-67 Expression in Canine and Feline Squamous Cell Carcinomas	<b>Russell P. Webb<sup>1</sup>, Moges W. Woldemariam<sup>2</sup></b> <sup>1</sup> Biology, Abraham Baldwin Agricultural College, Tifton, GA; <sup>2</sup> Veterinary Pathology, U of Georgia, Tifton, GA

<b>P41</b>	An Investigation into the Effects of Genestein on Human Breast Cancer Cells	<b>Hannah M. Tardif, Mackenzie Jarvis, Michael Gladhill, Angela Bauer, Kristen Bowey</b> Biology, High Point U, NC
<b>P42</b>	The Cytotoxic Effect of <i>Annona muricata</i> (Soursop) Fruit Pulp Extract on Hep-G2 Cells	<b>Ashley D Fox, Scott Weir, Patricia Koplas</b> Biology, Queens U of Charlotte, NC
<b>Friday, Apr 1<sup>st</sup> (ASB Posters 1-157)</b>		
<b>P43</b>	Characterization of the Venom Proteome for the Wandering Spider, <i>Ctenus hibernalis</i> (Aranea:Ctenidae)	<b>T. Jeffrey Cole<sup>1</sup>, Patrick A. Buszka<sup>1</sup>, James A. Mobley<sup>2</sup>, Robert A. Hataway<sup>1</sup></b> <sup>1</sup> Biological & Environmental Science, Samford U, Birmingham, AL; <sup>2</sup> Surgery, U of Alabama at Birmingham
<b>P44</b>	The Metabolic Regulator AMPK Alpha-2 Promotes Breast Cancer Cell Adhesion Properties	<b>Gabrielle J. Valles, Elliott T. Draughn, Melissa M. Fox</b> Biology, Wingate U, NC
<b>P45</b>	Genetic Screen for G Protein Signaling Components Involved in Nociception in <i>Drosophila melanogaster</i> Identifies Genes in the GαQ Pathway as Important for Nociception	<b>Michael Mutchler</b> Biology, Appalachian State U, Boone, NC
<b>P46</b>	Effects of Potential Neuroprotective Compounds on PC12 Cells	<b>Regan Chewing, Alison Woods, Mary A. Sahawneh</b> Biological & Environmental Science, Samford U, Birmingham, AL
<b>P47</b>	A Genetic Screen for Wnt Signaling Factors in <i>Drosophila melanogaster</i> nociception	<b>Paul R. Freeman, Andrew C. Bellemer</b> Biology, Appalachian State U, Boone, NC
<b>GENETICS</b>		
<b>P48</b>	Population Genetics of Seep Endemic <i>Xyris tennesseensis</i>	<b>Nickolaus Willis, Kala Downey, Carol Baskauf</b> Biology, Austin Peay State U, Clarksville, TN
<b>P49</b>	Introgression of a Root-Knot Nematode Resistance Gene from 'Honey Drip' into Susceptible Sorghum Lines	<b>Lolita L. Muñoz<sup>1</sup>, Karen Harris-Shultz<sup>2</sup>, Hongliang Wang<sup>1</sup>, Richard Davis<sup>1</sup>, Joseph Knoll<sup>1</sup>, Jason Peake<sup>1</sup></b> <sup>1</sup> College of Agriculture and Environmental Sciences, U of Georgia, Tifton; <sup>2</sup> Crop Genetics and Breeding Research Unit, USDA-ARS, Tifton, Georgia; <sup>3</sup> Crop Protection and Management Research, USDA-ARS, Tifton, GA
<b>P50</b>	Developing Microsatellite Markers to Distinguish Between Varieties of Vetiver ( <i>Chrysopogon zizanioides</i> )	<b>Christine A. Bowen, Matt C. Estep</b> Biology, Appalachian State U, Boone, NC
<b>P51</b>	Modeling the Mixed-Lineage Leukemia ( <i>MLL1</i> ) Multi-Protein Complex in <i>Saccharomyces cerevisiae</i>	<b>David Klein, Marian Baker, Renee J. Chosed</b> Biology, Furman U, Greenville, SC
<b>P52</b>	A Genetic-Sexing Study of Raptor Species Native to the South-Eastern United States	<b>Harley Williams, Jeffrey Thomas, Jennifer Easterwood</b> Biology, Queens U of Charlotte, NC
<b>P53</b>	The Effects of Caffeine and Alcohol on Development in <i>Drosophila melanogaster</i>	<b>Jordin Ellingson, Emily Bewick, Robert H. Wainberg</b> Biology, Piedmont College, Demorest, GA
<b>P54</b>	Comparison of <i>Ambystoma maculatum</i> and <i>Ambystoma opacum</i> population genetics in the Uwharrie Mountains of North Carolina	<b>Halley G. Watson, Chuck Smith, Patrick A. Vigueira, Cindy C. Vigueira</b> Biology, High Point U, NC

<b>P55</b>	Genetic Identification and Phylogeny of Parasitoid Wasps (Family <i>Ichneumonidae</i> ) from North Carolina	Joshua Baulch, Patrick A. Vigueira, Cindy C. Vigueira Biology, High Point U, NC
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### ANATOMY & PHYSIOLOGY

<b>P56</b>	The Influence of Seasonal Fluctuations in Temperature on Feeding Kinematics of Juvenile <i>Alligator mississippiensis</i>	Carl A. Chmielewski, James R. Kerfoot, Jr. Biology, Union U, Jackson, TN
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### Friday, Apr 1<sup>st</sup> (ASB Posters 1-157)

<b>P57</b>	How Doth the Little Crocodile: Analyzing the Effects of Environmental Viscosity on Feeding Performance of <i>Alligator mississippiensis</i> Juveniles	Emily E. Easter, James R. Kerfoot, Jr. Biology, Union U, Jackson, TN
<b>P58</b>	The Effects of Pruning Manipulation and Early-Spring Hoop House Use on Hop Production in Southwest Virginia	Justen Dick <sup>1</sup> , Emily Belanger <sup>2</sup> , Gerald Bresowar <sup>4</sup> <sup>1</sup> Kelly Ridge Farms, Meadowview, VA; <sup>2</sup> Biology, Emory and Henry College, Emory, VA
<b>P59</b>	Impact of Serious Games on Learning and Teaching in Undergraduate Anatomy and Physiology Classes	Donald Shaw <sup>1</sup> , Laina L. Roberson <sup>4</sup> <sup>1</sup> Biology, U of Tennessee at Martin; <sup>2</sup> Psychology, U of Tennessee at Martin
<b>P60</b>	A Long-Term Study of Cortisol as a Biomarker for Chronic and Acute Stressors	Eric M. Benfield, Barrett W. Bradham, Ivan P.M. Dingle, Zachary S. Ford, Charles P. Fyfe II, Fernando U. Gonzalez, Danny J. Gustafson, Kristy Y. Johnson Biology, The Citadel, Charleston, SC
<b>P61</b>	Effect of CrossFit on Academic Performance and Examination Stress in Preprofessional Undergraduate Students—A Preliminary Analysis	Joshua T. Clontz, Erika S. Niland, J. Alison Brown Biology, Wingate U, NC

### EVOLUTION

<b>P62</b>	Preliminary Analysis of Genetic Diversity in <i>Geum radiatum</i> Suggests Inter-Population Diversity	Nikolai M. Hay <sup>1</sup> , Chris Ulrey <sup>4</sup> , Gary Kauffman <sup>4</sup> , Zack E. Murrell <sup>1</sup> , Matt C. Estep <sup>1</sup> <sup>1</sup> Biology, Appalachian State U, Boone, NC; <sup>2</sup> Blue Ridge Parkway, NPS, Asheville, NC; <sup>3</sup> National Forest Service, Asheville, NC
<b>P63</b>	Assessing Viability and Development of Hybrid Offspring From Two Closely Related Insect Species	Paige L. Stover, Jennifer A. Hamel Biology, Elon U, NC
<b>P64</b>	Examining the Effects of Parasitism on Female Mate Choice and Copulation Duration	Dawson W. Nance, Jennifer A. Hamel Biology, Elon U, NC
<b>P65</b>	Costs of Between-Species Mating for Secondarily Sympatric and Allopatric Populations	Tyler K. Lehmann <sup>1</sup> , Jennifer A. Hamel <sup>4</sup> <sup>1</sup> Environmental Studies, Elon U, NC; <sup>2</sup> Biology, Elon U, NC
<b>P66</b>	Quantification of Male White-Crowned Manakin ( <i>Dixiphia pipra</i> ) Displays Using Object-Recognition Software	Lauren Woods <sup>1</sup> , Casey Murakami <sup>1</sup> , Paul Zwiers <sup>1</sup> , Philip Fulmer <sup>4</sup> <sup>1</sup> Biology, Francis Marion U, Florence, SC; <sup>2</sup> Physics & Astronomy, Francis Marion U, Florence, SC
<b>P67</b>	Whispered Communication: The Structure of a Low-Amplitude Signal Produced by Hatching Chinese Blue-breasted Quail ( <i>Coturnix chinensis</i> )	Edward D. Mills Biology, Wingate U, NC

<b>P68</b>	Identifying Transposable Elements Using a Comparative Approach to Understand Grass Genome Evolution	<b>Andrew Murray, James Wise, Lindsay Shields, Alyssa Phillips, William Fenner, Matt C. Estep</b> Biology, Appalachian State U, Boone, NC
<b>P69</b>	Amplification and Sequence Verification of Gene Regions to Be Used in a Phylogeographic Study of the Pine Barrens Treefrog ( <i>Hyla andersonii</i> )	<b>Sarah Rawlins<sup>1</sup>, Ashley Watford<sup>2</sup>, Autumn Lupotsky<sup>2</sup>, Mya Praileau<sup>2</sup>, Timothy Tedder<sup>2</sup>, Paul Zwiers<sup>2</sup>, Jeff Camper<sup>2</sup></b> <sup>1</sup> Clemson Pee Dee Research and Education Center, Florence, SC; <sup>2</sup> Biology, Francis Marion U, Florence, SC

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#### SYTSTEMATICS, COLLECTIONS & HERBARIA

<b>P70</b>	Dentition and radula morphology in an undescribed <i>Ercolania</i> species (Mollusca: Opisthobranchia: Ascoglossa)	<b>Ashley Sibley, Deirdre Gonsalves-Jackson</b> Biology, Virginia Wesleyan College, Norfolk
<b>P71</b>	Spiculation in <i>Doriopsilla pharpa</i> (Mollusca: Gastropoda: Opisthobranchia: Nudibranchia) and Its Sponge Prey	<b>Ashley Byers, Deirdre Gonsalves-Jackson</b> Biology, Virginia Wesleyan College, Norfolk
<b>P72</b>	Taxonomy and Phylogeny of the Genus <i>Diervilla</i> (Diervillaceae)	<b>Hannah Meeler<sup>1</sup>, Katherine G. Mathews<sup>2</sup></b> <sup>1</sup> Biology, Western Carolina U, Cullowhee, NC; <sup>2</sup> Biology, Western Carolina U, Cullowhee, NC
<b>P73</b>	Comparison and Phylogenetic Classification of <i>Quercus margaretta</i> Populations by DNA Barcode Analysis	<b>Heather J. Vidal, Michael H. Schiebout</b> Biology, Union U, Jackson, TN
<b>P74</b>	A Morphometric Study of the <i>Cyperus granitophilous</i> – <i>Cyperus squarrosus</i> Complex in Georgia	<b>Phillip D. Lowe, Richard Carter</b> Biology, Valdosta State U, GA
<b>P75</b>	Identification of Mycorrhizae Associated With the Aquatic Plant <i>Isoetes</i> (Isoeteaceae)	<b>Viridiana Mandujano, Karina Noyola-Alonso, Morgan E. Elder, Jay F. Bolin</b> Biology, Catawba College, Salisbury, NC
<b>P76</b>	Molecular Identification of Quillworts ( <i>Isoetes</i> ) in the Aquarium Trade	<b>Morgan E. Elder, Joel D. Schlaudt, Douglas B. Taylor, Jay F. Bolin</b> Biology, Catawba College, Salisbury, NC
<b>P77</b>	Genetic Sequencing and Barcoding of <i>Sabal</i> Palms	<b>Elizabeth Castiglione, Bryan Gonzalez, Steven Ritter, Alfredo Leon</b> North Campus, Miami Dade College, FL
<b>P78</b>	Comparison and Phylogenetic Classification of <i>Quercus margaretta</i> Populations by DNA Barcode Analysis	<b>Heather J. Vidal, Michael H. Schiebout</b> Biology, Union U, Jackson, TN
<b>P79</b>	The Vascular Flora of the University of the South, Sewanee, Tennessee	<b>Jonathan P. Evans<sup>1</sup>, Callie A. Oldfield<sup>1</sup>, Mary P. Priestley<sup>1</sup>, Yolande M. Gottfried<sup>1</sup>, L. Dwayne Estes<sup>2</sup>, Alfire Sidik<sup>3</sup>, George S. Ramseur<sup>1</sup></b> <sup>1</sup> Biology, Sewanee: The U of the South, TN; <sup>2</sup> Biology, Austin Peay State U, Clarksville, TN; <sup>3</sup> Cellular and Molecular Biology, U of Texas at Austin
<b>P80</b>	The Gift of Natural History: The Annie M. Smith Collection at Dalton State College	<b>Cristina Pena, Linda Braun, Kimberly A. Hays</b> Natural Science, Dalton State College, GA



<b>P81</b>	Modernizing the MTSU Herbarium to Reflect 21st Century Approaches to Collections Curation	<b>Nickolaus A. Gonder, Ashley B. Morris</b> Biology, Middle Tennessee State U, Murfreesboro
<b>P82</b>	Advances in Wiregrass Georgia: Infrastructural Improvements to Sustain another Half-Century of Herbarium-Based Research and Teaching at Valdosta State University	<b>Richard Carter, Ashlee D. Robinson, Phillip D. Lowe</b> Biology, Valdosta State U, GA

## HERPETOLOGY 1

<b>P83</b>	Assessment of the Distribution of Snake Fungal Disease in Kentucky	<b>Jennifer M. McKenzie<sup>1</sup>, Steven J. Price<sup>1</sup>, Leo J. Fleckenstein<sup>1</sup>, Andrea N. Drayer<sup>1</sup>, Jeffrey M. Lorch<sup>2</sup></b> <sup>1</sup> Forestry, U of Kentucky, Lexington; <sup>2</sup> US Geological Survey, National Wildlife Health Center, Madison, WI
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Friday, Apr 1<sup>st</sup> (ASB Posters 1-157)

<b>P84</b>	Developing Length Estimates for Incomplete Rattlesnake Skeletons Through Vertebral Measurements and X-Ray Technology	<b>Alanna R. Horton, Meagan A. Thomas, Michael E. Dorcas</b> Biology, Davidson College, NC
<b>P85</b>	Factors Affecting Aquatic Activity in Red-Spotted Newts ( <i>Notophthalmus viridescens</i> )	<b>Brielle L. Bowerman<sup>1</sup>, Emma R. Johnson<sup>1</sup>, Meagan A. Thomas<sup>1</sup>, Kristine L. Grayson<sup>2</sup>, Michael E. Dorcas<sup>1</sup></b> <sup>1</sup> Biology, Davidson College, NC; <sup>2</sup> Biology, U Richmond, VA
<b>P86</b>	Evaluating the Potential for Unmanned Aerial Vehicles (UAVs) to be Used as a Tool to Study Freshwater Turtle Populations	<b>YangYu Zhou<sup>1</sup>, Meagan A. Thomas<sup>1</sup>, Michael E. Dorcas<sup>1</sup></b> Biology, Davidson College, NC
<b>P87</b>	Feeding Frequency Affects Growth Rates and Assimilation Efficiency in Juvenile Burmese Pythons	<b>Aren J. Carpenter<sup>1</sup>, Paige A. Farrar<sup>1</sup>, Jason Ortega<sup>2</sup>, John D. Willson<sup>2</sup>, Michael E. Dorcas<sup>1</sup></b> <sup>1</sup> Biology, Davidson College, NC; <sup>2</sup> Biological Sciences, U Arkansas, Fayetteville
<b>P88</b>	The Relationship Between Population Structure and Density in Pond Turtles	<b>Anna Marie Scoccimaro, Michael E. Dorcas</b> Biology, Davidson College, NC
<b>P89</b>	Impacts of Airplane Noise on Winter-Breeding Anuran Populations	<b>Alanna R. Horton<sup>1</sup>, Kathryn M. Greene<sup>1</sup>, Meagan A. Thomas<sup>1</sup>, Aaron N. Rice<sup>2</sup>, Michael E. Dorcas<sup>1</sup></b> <sup>1</sup> Biology, Davidson College, NC; <sup>2</sup> Bioacoustics, Cornell U, Ithaca, NY
<b>P90</b>	Occupancy Dynamics of Stream Salamanders in Degraded and Reference Headwater Streams	<b>Sara B. Freytag<sup>1</sup>, Steven J. Price<sup>1</sup>, Simon J. Bonner<sup>2</sup>, Breneé L. Muncy<sup>1</sup>, Andrea N. Drayer<sup>1</sup>, Christopher D. Barton<sup>1</sup></b> <sup>1</sup> Forestry, U Kentucky, Lexington; <sup>2</sup> Statistical and Actuarial Sciences, U of Western Ontario, London
<b>P91</b>	Movement of Hatchery-reared Alligator Snapping Turtles at Two Lentic Sites in Northern Louisiana	<b>Cody L. Townsend, John L. Carr</b> Biology and Museum of Natural History, U of Louisiana at Monroe
<b>P92</b>	Predicted Impact of Climate Change on the Geographic Range of the Eastern Coral Snake ( <i>Micrurus fulvius</i> )	<b>Jennifer N. Archis, Amanda J. Chunco</b> Environmental Studies, Elon U, NC
<b>P93</b>	Nocturnal Tracking of Genus <i>Hyla</i> with Fluorescent Pigments on Anderson University Wetlands (Anderson, SC).	<b>Alexis Moorhouse, Joni M. Criswell</b> Biology, Anderson U, Anderson, SC

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**ENTOMOLOGY/INVERTEBRATES/PARASITOLOGY 1**


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<b>P94</b>	The Impact of Diet on Pupation Site Choice in the Caterpillar <i>Trichoplusia ni</i>	<b>William C. Best, David M. Donnell</b> Biology, The Citadel, Charleston, SC
<b>P95</b>	Non-Preference of the Catalpa Sphinx, <i>Ceratomia catalpae</i> (Lepidoptera: Sphingidae) to Invertebrate Predators	<b>Stephanie Brandys, Leah Orange, Diana Porras, Evan Lampert</b> Biology, U of North Georgia, Oakwood
<b>P96</b>	<i>Callosobruchus maculatus</i> Oviposition Preference Influenced by Chemical Cues on Bean Surfaces	<b>Jenna I. Hojnacki, Rachel C. Fenner, Sarah B. Spiro, Tin B. Tran, Matthew M. Howell, John F. Moeller</b> Biology, Wofford College, Spartanburg, SC
<b>P97</b>	A Survey of Pollinating Flies and Bees around Yellow and Blue Flower Resources in Vietnam using Multiple Trap Methods.	<b>Manuela Gallego Builes, Gina V. Amariles, Alicia M. Flood, Juan P. Aristizabal, Ivan Magana, Kerami D. Moss, Stefano R. Rosillo, Catherine G. Schlueter, Mark A. Schlueter</b> Science & Technology, Georgia Gwinnett College, Lawrenceville

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<b>P98</b>	Molecular Evidence of Undescribed <i>Ceratonova</i> sp. (Cnidaria: Myxosporea) Infecting Freshwater Polychaete, <i>Manayunkia speciosa</i> , in Western Lake Erie	<b>R. Benjamin Snipes<sup>1</sup>, David M. Malakauskas<sup>1</sup>, Ann M. Thompson<sup>1</sup>, Donald W. Schloesser<sup>2</sup></b> <sup>1</sup> Biology, Francis Marion U, Florence, SC; <sup>2</sup> US Geological Survey, Great Lakes Science Center, Ann Arbor, MI
<b>P99</b>	Characterization of <i>Wolbachia</i> Endosymbionts From Two Species of Widow Spiders and a Widow Spider Egg Parasitoid	<b>Bryant Brumbill, J. Scott Harrison</b> Biology, Georgia Southern U, Statesboro
<b>P100</b>	Color Change in Larval Antlions in Response to Background	<b>Jennifer Zettler, Bil Leidersdorf, Abigail Johnson</b> Biology, Armstrong State U, Savannah, GA
<b>P101</b>	Life History of a Facultative Precocious Trematode, <i>Alloglossidium progeneticum</i> , in the White Tubercle Crayfish, <i>Procambarus spiculifer</i> , in the Yellow River, GA	<b>Riccardo Fiorillo, Daniel De La Hoz</b> Science & Technology, Georgia Gwinnett College, Lawrenceville
<b>P102</b>	Effect of Botanical Components and Essential Oils of 21 Plant Species on the Yellow Fever Mosquito, <i>Aedes aegypti</i>	<b>William H. Dees<sup>1</sup>, Caleb M. Ardizzone<sup>1</sup>, Jill Hightower<sup>2</sup>, Omar E. Christian<sup>3</sup>, Janet R. Woolman<sup>4</sup></b> <sup>1</sup> Biology & Health Sciences, McNeese State U, Lake Charles, LA; <sup>2</sup> Calcasieu Parish Mosquito & Rodent Control, Lake Charles, LA; <sup>3</sup> Chemistry & Physics, McNeese State U, Lake Charles, LA; <sup>4</sup> Economic Development, McNeese State U, Lake Charles, LA
<b>P103</b>	Investigations of Potential Insecticidal Compounds From <i>Monarda fistulosa</i> and <i>Solidago gigantea</i>	<b>Caleb M. Ardizzone<sup>1</sup>, Nick DeVito<sup>1</sup>, Jill Hightower<sup>2</sup>, William H. Dees<sup>1</sup>, Omar E. Christian<sup>3</sup>, Janet R. Woolman<sup>4</sup></b> <sup>1</sup> Biology and Health Sciences, McNeese State U, Lake Charles, LA; <sup>2</sup> Calcasieu Parish Mosquito and Rodent Control, Lake Charles, LA; <sup>3</sup> Chemistry & Physics, McNeese State U, Lake Charles, LA; <sup>4</sup> Economic Development, McNeese State U, Lake Charles, LA
<b>P104</b>	Seasonal Survey of Adult Mosquitoes in an Urban Park	<b>Caleb M. Ardizzone<sup>1</sup>, Dakota L. Johnson<sup>1</sup>, William H. Dees<sup>1</sup>, Jill Hightower<sup>2</sup></b> <sup>1</sup> Biology & Health Sciences, McNeese State U, Lake Charles, LA; <sup>2</sup> Calcasieu Parish Mosquito & Rodent Control, Lake Charles, LA

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<b>P105</b>	Harvestman Size Impacts the Realized Trophic Level in a Rain Forest Food Web	<b>Maynard H. Schaus, Victor R. Townsend, Jr.</b> Biology, Virginia Wesleyan College, Norfolk
<b>P106</b>	Responses of the Harvestman <i>Cynorta marginalis</i> to Olfactory Cues and Conspecifics	<b>Maynard H. Schaus, Victor R. Townsend, Jr., Ashley N. Shrives, Cynthia L. Richardson</b> Biology, Virginia Wesleyan College, Norfolk

### AQUATIC ECOLOGY 1

<b>P107</b>	Cellular Responses of the Eastern Oyster, <i>Crassostrea virginica</i> , to PolyDOTs	<b>Daniel J. Smith<sup>1</sup>, Nicole H. Levi-Polyachenko<sup>4</sup>, Amy H. Ringwood<sup>1</sup></b> <sup>1</sup> Biological Sciences, UNC Charlotte; <sup>2</sup> Plastic and Reconstructive Surgery, Wake Forest School of Medicine, Winston-Salem, NC
<b>P108</b>	Spatial Patterns in Herbivory Within Belizean Seagrass Beds as Estimated by Blade Injury, Length and Width	<b>Adrianna L. Parson, Joseph M. Dirnberger</b> Ecology, Evolution & Organismal Biology, Kennesaw State U, GA
<b>P109</b>	Resolving a Florida Spring Food Web Through Diet Analysis of Fish	<b>Genevieve Patrick, Kirsten Work</b> Biology, Stetson U, DeLand, FL
<b>P110</b>	Ammonium Retention Analysis at Mill Creek Restoration Site	<b>Annalise M. Reagan, Courtney T. Dobash, Elizabeth B. Sudduth</b> Science & Technology, Georgia Gwinnett College, Lawrenceville

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<b>P111</b>	Sediment Transport at Mill Creek Restoration Site	<b>Courtney T. Dobash, Annalise M. Reagan, Elizabeth B. Sudduth</b> Science & Technology, Georgia Gwinnett College, Lawrenceville
<b>P112</b>	Investigation of the UV Sensitivity and Photoenzymatic Repair Capabilities of <i>Daphnia magna</i> and <i>Daphnia lumholtzi</i>	<b>Mary Clare A. McGinn</b> Biology, High Point U, NC
<b>P113</b>	Habitat Contamination and Antipredator Behaviors in Longnose Dace ( <i>Rhinichthys cataractae</i> )	<b>Haley K. Lloyd, Kimberly J. Bolyard</b> Biology, Bridgewater College, Bridgewater, VA
<b>P114</b>	Identifying <i>Daphnia</i> Species by Morphological Traits and DNA Barcoding	<b>Cara Vielhauer<sup>1</sup>, Melissa Pompilius<sup>4</sup>, Robert U. Fischer<sup>3</sup></b> <sup>1</sup> Biology, Middle Tennessee State U, Murfreesboro; <sup>2</sup> Biology, Middle Tennessee State U, Murfreesboro; <sup>3</sup> College of Basic and Applied Sciences, Middle Tennessee State U, Murfreesboro
<b>P115</b>	The Effect of Female Egg Production on Male Mating Behavior in the Copepod <i>Tigriopus californicus</i>	<b>Anna Lee Whitaker, Alex Dye, J. Scott Harrison</b> Biology, Georgia Southern U, Statesboro
<b>P116</b>	Effects of Light Cycling and Wavelength on the Molecular Components and Circadian Clock of <i>Nematostella vectensis</i>	<b>Whitney B. Leach<sup>1</sup>, Adam M. Reitzel<sup>1</sup></b> Biological Sciences, UNC Charlotte
<b>P117</b>	An Historical Analysis of Legacy Agricultural Land Use and its Effects on Present Day Fish Abundance and Diversity in Streams of the South Carolina Piedmont	<b>Mark Frederick, Carolyn Day, Dennis C. Haney</b> History and Biology, Furman U, Greenville, SC
<b>P118</b>	Survivability of <i>Daphnia magna</i> in Aqueous Hexavalent Chromium	<b>Elaine Rossignol, Debra Dooley</b> Natural Sciences, Piedmont College, Demorest, GA

<b>P119</b>	Organic Carbon Burial in Subtropical, Shallow Lakes in Florida, USA: Investigating the Impacts of Warming and Humans	<b>Benjamin C. Webster, Matthew N. Waters<sup>1</sup></b> Biology, Valdosta State U, GA
<b>P120</b>	An Analysis of the Effectiveness of Underwater Video Analysis as a Survey Technique for Fish Communities in Mountain Streams	<b>Lacy J. Clark, Timothy A Kreps</b> Biology, Bridgewater College, Bridgewater, VA

### POPULATION ECOLOGY 1

<b>P121</b>	Retrospective Study of Birds of Prey Treated at the Southeastern Raptor Center in Auburn, Alabama	<b>Cecilia L. Hernandez<sup>1</sup>, Seth Oster<sup>2</sup>, Jennifer L. Newbrey<sup>1</sup></b> <sup>1</sup> Biology, Columbus State U, GA; <sup>2</sup> Southeastern Raptor Center, Auburn U, AL
<b>P122</b>	Parameter Sensitivity Analysis for Pesticide Impacts on Honeybee Colonies	<b>Carmen Kuan<sup>1</sup>, Bob Curry<sup>4</sup>, Gloria DeGrandi-Hoffman<sup>3</sup>, Kris Garber<sup>4</sup>, Andrew Kanarek<sup>4</sup>, Tom Purucker<sup>5</sup></b> <sup>1</sup> Oak Ridge Institute of Science and Engineering, Athens, GA; <sup>2</sup> Crystal River Consulting, Tucson, AZ; <sup>3</sup> USDA Agricultural Research Service, Tucson, AZ; <sup>4</sup> EPA, Arlington, VA; <sup>5</sup> EPA, Athens, GA
<b>P123</b>	Genetic Structure of Feral Pig Populations in Tennessee	<b>Rebecca L. Sale, Chloe E. Wilson, Mary K. Sledge, John S. Lewis</b> Biology, Lipscomb U, Nashville, TN
<b>P124</b>	Tomorrowland: Elevated CO <sub>2</sub> Alters Broad Bean, <i>Vicia Faba</i> L., Growth/Defense Tradeoffs	<b>Harley B. Kitching, Edward B. Mondor</b> Biology, Georgia Southern U, Statesboro

### Friday, Apr 1<sup>st</sup> (ASB Posters 1-157)

<b>P125</b>	Dendrochronology of <i>Juniperus virginiana</i> on Mississippi Black Belt Prairie	<b>William G. Mitchell<sup>1</sup>, John A. Barone<sup>1</sup>, JoVonn G. Hill<sup>4</sup></b> <sup>1</sup> Biology, Columbus State U, GA; <sup>2</sup> Mississippi Entomological Museum, Mississippi State U, Starkville
<b>P126</b>	Comparing Reproductive Success in Allopatric and Sympatric Species of <i>Anasa trists</i> and <i>A. andresii</i>	<b>Tyler K. Lehmann<sup>1</sup>, Jennifer A. Hamel<sup>2</sup></b> <sup>1</sup> Environmental & Ecological Science, Elon U, NC; <sup>2</sup> Biology, Elon U, NC
<b>P127</b>	Effects of Genotype, Environment and Their Interaction on Leaf Terpenes and the Abundance of a Specialist Aphid in <i>Solidago altissima</i>	<b>Brian K. Bonville<sup>1</sup>, Ray S. Williams</b> Biology, Appalachian State U, Boone, NC
<b>P128</b>	Effects of Genotype and Site on Flower Terpenes and the Pollinator Community of the Old-Field Plant <i>Solidago altissima</i>	<b>Julie A. Ragsdale, Ray S. Williams</b> Biology, Appalachian State U, Boone, NC
<b>P129</b>	Effects of Human Disturbance on Hatching Failure Rates of Eastern Bluebirds ( <i>Sialia sialis</i> ) in West-Central Georgia	<b>Marie J. Singletary, Jennifer L. Newbrey, Michael G. Newbrey</b> Biology, Columbus State U, GA

### ECOSYSTEM and LANDSCAPE ECOLOGY

<b>P130</b>	Arthropod Phenology as a Component of Birds' Reproductive Success	<b>Tracie E Hayes<sup>1</sup>, Allen H Hurlbert<sup>1</sup></b> Biology, UNC Chapel Hill
<b>P131</b>	Visualizing Forest Characteristics of Elon University Forest in ArcMap	<b>Brittany R. DiRienzo<sup>1</sup>, David B. Vanderma<sup>2</sup></b> <sup>1</sup> Environmental & Ecological Science, Elon U, NC; <sup>2</sup> Biology, Elon U, NC

<b>P132</b>	Carbon Sequestration and Changes in Aboveground Tree Biomass on Elon University Forest	<b>Sarah A. Gilley, David B. Vandermast</b> Environmental & Ecological Science, Elon U, NC
<b>P133</b>	Quantifying Private Lands Contributions to Waterfowl Habitat Management Objectives in the Lower Mississippi Alluvial Valley	<b>Garrett L. Wilkerson, Kim M. Tolson, J. Dale James</b> <sup>1</sup> Biology, U of Louisiana at Monroe; <sup>2</sup> Biology, U of Louisiana at Monroe; <sup>3</sup> Conservation Planning, Ducks Unlimited, Ridgeland, MS
<b>P134</b>	Invertebrate Diversity on Urban Green Roofs in Charlotte, NC	<b>Danielle K. M. Merritt, Sara A. Gagné</b> Geography & Earth Sciences, UNC Charlotte
<b>P135</b>	The Effect of Bird Diversity on Human Psychological Wellbeing on the Neighborhoods of Charlotte Metropolitan Area	<b>Abel Ayon<sup>1</sup>, Sara A. Gagné</b>
<b>P136</b>	Monitoring the Effectiveness of Storm Water Bioretention Areas on the Abraham Baldwin Agricultural College Campus	<b>Lori M. Sherling, Carrie R. Crabtree</b> Science, Abraham Baldwin Agricultural College, Tifton, GA

### PHYSIOLOGICAL ECOLOGY

<b>P137</b>	Interactions of the Manganese Hyperaccumulator <i>Phytolacca americana</i> with Soil pH and Phosphate	<b>Kara V. DeGroote, Grace L. McCartha, A. Joseph Pollard</b> Biology, Furman U, Greenville, SC
<b>P138</b>	Morphological and Ecological Study of the Crane-Fly Orchid ( <i>Tipularia discolor</i> )	<b>Margaret Essepian<sup>1</sup>, Allyson Kane<sup>1</sup>, Nicole Hughes<sup>1</sup></b> Biology, High Point U, NC

### Friday, Apr 1<sup>st</sup> (ASB Posters 1-157)

<b>P139</b>	Testing Potential Allelopathic Mechanisms of Chinese Privet ( <i>Ligustrum sinense</i> ) for Herbicidal Purposes	<b>Jessica L B Hunnicutt<sup>1</sup>, Kunsiri C. Grubbs<sup>1</sup></b> Biology, Winthrop U, Rock Hill, SC
<b>P140</b>	Effects of 1-Alkyl-3-Methylimidazolium Chloride Ionic Liquids on the Growth of Agricultural and Native Wetland Plants	<b>Morgan E. Kennedy, John T. Emery, Abidemi T. Adamson, Jingjing Sun, Jessica L. Ertel, Adedolapo A. Odutola, Heather D. Sutton</b> Ecology, Evolution & Organismal Biology, Kennesaw State U, GA
<b>P141</b>	Seasonal Variation in Immune Function, Energetic Status, and Infection with Snake Fungal Disease in Free-Ranging Pigmy Rattlesnakes ( <i>Sistrurus miliarius</i> ) in Central Florida	<b>McCoy, Ciera, Craig Lind, Terence Farrell</b> Biology, Stetson U, DeLand, FL
<b>P142</b>	The Influence of Light and Soil Moisture Availability on the Rare Terrestrial Orchid <i>Platanthera integrilabia</i>	<b>Sarah Parker, Gregory Raymond, Jennifer Boyd</b> Biology, Geology, and Environmental Science, U of Tennessee at Chattanooga
<b>P143</b>	Optimization of Chloroplast Isolation from the Sabal Genus	<b>Arleeya S. Alexander, Kathlyn Alexis, Steven Ritter, Alfredo León</b> Biology, Health & Wellness, Miami Dade College, FL
<b>P144</b>	Winter Photosynthesis of Chinese Privet ( <i>Ligustrum sinense</i> )	<b>Catherine Cooke, David B. Vandermast</b> Biology, Elon U, NC

### CONSERVATION ECOLOGY 1

<b>P145</b>	Community Effects and Genetic Diversity of Post-Fire <i>Paulownia tomentosa</i> Invasions in the Linville Gorge Wilderness Area, Burke County, NC	<b>Joseph B. Lovenshimer, Michael D. Madritch</b> Biology, Appalachian State U, Boone, NC
<b>P146</b>	Exploring Trapping Methodology in Species Richness Estimation of Rodents and Insectivores at Oak Mountain State Park	<b>Victoria P. Van de Vuurst<sup>1</sup>, David M. Frings<sup>2</sup></b> <sup>1</sup> Biological & Environmental Science, Samford U, Birmingham, AL; <sup>2</sup> Oak Mountain Interpretive Center, Samford U, Birmingham, AL
<b>P147</b>	Effects of drying and storage method on nutritional content of acorn masts for wildlife rehabilitation patients: a pilot study	<b>Malia D. Berg<sup>1</sup>, Tamara L. Johnstone-Yellin<sup>1</sup>, Kate Guenther<sup>2</sup>, David McRuer<sup>2</sup></b> <sup>1</sup> Biology, Bridgewater College, Bridgewater, VA; <sup>2</sup> Wildlife Center of Virginia, Walterboro, VA
<b>P148</b>	A Long-Term Experimental Study With American Chestnut Hybrids in a 100-Year-Old Forest Within the Ridge and Valley province of Virginia	<b>Christopher P. Coggin, Matthew Morrissey, Guy Stewart, Heather P. Griscom</b> Biology, James Madison U, Harrisonburg, VA
<b>P149</b>	Searching for the Ghost of the Appalachians: The American Chestnut	<b>Christopher P. Coggin, Brittany O. Culp, Abigail R. Goszka, Bruce A. Wiggins, Heather P. Griscom</b> Biology, James Madison U, Harrisonburg, VA
<b>P150</b>	Where does the elusive American Ginseng grow best? Experimental Field Trials	<b>Abigail R. Goszka, Ashley M. Warrington, Emily C. Thyroff, Heather P. Griscom</b> Biology, James Madison U, Harrisonburg, VA
<b>P151</b>	A Preliminary Investigation of the Ages of <i>Juniperus virginiana</i> L. in the Cedar Glades and Barrens of Tennessee	<b>Thomas C. Byrd, Rebecca A. Cook</b> Biological Sciences, U of Memphis Lambuth Campus, TN
<b>P152</b>	A Multi-Year Study Examining the Effect of Human Settlements on Carnivore Abundance and Diversity	<b>Sarah G. MacDonald, Mark A. Schlueter</b> Science & Technology, Georgia Gwinnett College, Lawrenceville

### Friday, Apr 1<sup>st</sup> (ASB Posters 1-157)

<b>P153</b>	The Distribution, Reproductive Viability and Nutrient Status of an Endemic Population of Large-Flowered Skullcap Mint [ <i>Scutellaria Montana</i> L.] in Marshall Forest, Rome, GA	<b>Susan Monteleone<sup>1</sup>, Jesse Purser<sup>2</sup>, Hannah Turner<sup>3</sup>, Shea Spicher<sup>4</sup>, Boyd Butler<sup>1</sup>, Chris Elsey<sup>1</sup>, Jonathan Paul<sup>1</sup></b> <sup>1</sup> Natural Science, Shorter U, Rome, GA; <sup>2</sup> Georgia Power, Rome, GA; <sup>3</sup> Medicine, U of Alabama; <sup>4</sup> Occupational Therapy, U of Alabama, Birmingham
<b>P154</b>	Restoration of Sandhill Ecosystems: The Importance of Soil Fungi on the Growth of a Native Perennial, <i>Liatis tenuifolia</i> Nutt	<b>Tabitha A. Petri, Cynthia C Bennington</b> Biology, Stetson U, DeLand, FL
<b>P155</b>	Hybridization in the <i>Hexastylis heterophylla</i> Species Complex, With a Focus on the Conservation of <i>Hexastylis naniflora</i>	<b>Joseph T. McKenna, Zack E. Murrell, Matt C. Estep, Nikolai M. Hay</b> Biology, Appalachian State U, Boone, NC
<b>P156</b>	Hellbender Citizen Science: A Survey Focusing on the Distribution of the Eastern Hellbender ( <i>Cryptobranchus alleganiensis alleganiensis</i> ) in Southwest Virginia	<b>Ashlee S. Taylor, Walter H. Smith</b> Natural Science, The U of Virginia's College at Wise
<b>P157</b>	An Evaluation of Visible Implant Elastomer Tags in The Northern Slimy Salamander, <i>Plethodon glutinosus</i>	<b>Andrew M. Dawdy<sup>1</sup>, Kate C. Donlon<sup>1</sup>, John B. Jensen<sup>2</sup>, Thomas C. McElroy<sup>1</sup></b> <sup>1</sup> Ecology, Evolution & Organismal Biology, Kennesaw State U, GA; <sup>2</sup> Wildlife Resources Division, Georgia Natural Resources, Forsyth

### Saturday, Apr 2<sup>nd</sup> (ASB Posters # 158-274)

#### PULSE

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|-------------|---|---|
| <b>P158</b> | The Appalachian Arkcode: A Vision & Change Inspired Model for an Authentic Research Lab Series Aimed at Freshman  | <b>Sarah Marshburn, Zack E. Murrell</b><br>Biology, Appalachian State U, Boone, NC  |
| <b>P159</b> | SERP Update: Departmental Transformation at East Tennessee State University   | <b>Joseph Bidwell, Cerrone Foster, Anna C. Hiatt, Cecilia McIntosh, Rebecca Pyles</b><br>Biological Sciences, East Tennessee State U, Johnson City  |
| <b>P160</b> | Moving Mountains: The Impact of the Southeastern Regional PULSE Initiative on Twenty Diverse Institutions Engaged in Department-Wide Undergraduate Biology Reform | <b>Ellen S. Goldey<sup>1</sup>, Judy Awong-Taylor<sup>2</sup>, Mary P. Smith<sup>3</sup></b><br><sup>1</sup> Biology, Wofford College, Spartanburg, SC;<br><sup>2</sup> School of Science and Technology, Georgia Gwinnett College, Lawrenceville, GA;<br><sup>3</sup> NC A&T, Greensboro, NC |
| <b>P161</b> | Evolution of the Biology Major Curriculum at James Madison University: It Starts with the Freshman  | <b>Kyle Seifert, Tim Bloss, Joanna Moat</b><br>Biology, James Madison U, Harrisonburg, VA   |
| <b>P162</b> | Transforming a Department Using Strategic Planning, Assessment Data, and Department Inclusion: A Progress Report at Lander University                             | <b>Lisa McDonald, Mark J. Pilgrim, Emily Prince, TD Maze</b><br>Biology, Lander U, Greenwood, SC  |
| <b>P163</b> | Save the Bears: An Update on the Action Plan of Mercer University's Biology Department  | <b>Katharine V. Northcutt, Virginia A. Young, Linda L. Hensel, Kevin M. Drace</b><br>Biology, Mercer U, Macon, GA   |
| <b>P164</b> | A student-centered learning focus: strategies to strengthen the P.U.L.S.E. of the Newberry College Biology Program  | <b>Valarie A. Burnett, Charles N. Horn</b><br>Science & Mathematics-Biology, Newberry College, SC   |

### Saturday, Apr 2<sup>nd</sup> (ASB Posters # 158-274)

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| <b>P165</b> | Integrating Discovery-Based Research Into the Undergraduate Curriculum: A Report of a National Academies of Sciences, Engineering, and Medicine Convocation | <b>Mary A. Smith</b><br>Biology, North Carolina A & T State U, Greensboro, NC   |
| <b>P166</b> | Active Learning Strategies Program Implementation Through Project-Based Learning as Part of a Biotechnology Curriculum                                      | <b>Alfredo Leon</b><br>Miami Dade College, North Campus, Miami, FL  |
| <b>P167</b> | Course-based Undergraduate Research Experience in an Introductory Biology Course: Assessing the PULSE of our Majors   | <b>Mabel O. Royal, Wendy H. Grillo, Amal M. Abu-Shakra, Gail P. Hallowell</b><br>Dept of Biological and Biomedical Sciences, North Carolina Central U, Durham, NC   |
| <b>P168</b> | Using Course-Embedded Undergraduate Research Experiences (CUREs) to Build and Sustain High Student Engagement in STEM Fields at Georgia Gwinnett College    | <b>Judy Awong-Taylor<sup>1</sup>, Clay Runck<sup>1</sup>, David Pursell<sup>1</sup>, Tirza Leader<sup>2</sup>, Allison R. D'Costa<sup>1</sup>, Patrick Smallwood<sup>1</sup>, Thomas Mundie<sup>1</sup></b><br><sup>1</sup> Science & Technology, Georgia Gwinnett College, Lawrenceville; <sup>2</sup> School of Liberal Arts, Georgia Gwinnett College, Lawrenceville, GA |



### SCHOLARSHIP OF TEACHING & LEARNING

<b>P169</b>	Using Service Learning Internships to Build and Sustain High Student Engagement in STEM Fields at Georgia Gwinnett College	<b>Clay Runck<sup>1</sup>, Allison R. D'Costa<sup>1</sup>, Bernadette Peiffer<sup>4</sup>, Judy Awong-Taylor<sup>1</sup>, Melissa Kinard<sup>4</sup>, Thomas Mundie<sup>1</sup></b> <sup>1</sup> Science & Technology, Georgia Gwinnett College, Lawrenceville; <sup>2</sup> Education, Georgia Gwinnett College, Lawrenceville
<b>P170</b>	Using Learning Styles to Predict Instructional Preferences	<b>Mary E. Lehman</b> Biological and Environmental Sciences, Longwood U, Farmville, VA
<b>P171</b>	Engaging Undergraduate Science Students at Risk of Leaving Science	<b>William H. Dees<sup>1</sup>, Christopher G. Struchtemeyer<sup>1</sup>, Caroline E. Hennigan<sup>1</sup>, Caleb M. Ardizzone<sup>1</sup>, Janet R. Woolman<sup>2</sup></b> <sup>1</sup> Biology and Health Sciences, McNeese State U, Lake Charles, LA; <sup>2</sup> Economic Development, McNeese State U, Lake Charles, LA
<b>P172</b>	Practical Guidelines for Health Education and Training for Emerging Diseases in Overseas Communities	<b>William H. Dees<sup>1</sup>, Jonathan R. Davis<sup>4</sup></b> <sup>1</sup> Biology and Health Sciences, McNeese State U, Lake Charles, LA; <sup>2</sup> Infectious Disease Consultant, Alexandria, VA
<b>P173</b>	The Nightmare Buffet: An Introduction to Epidemiological Practices for General Biology Students	<b>Elizabeth S. Bradshaw<sup>1</sup>, Justin M. Bradshaw<sup>4</sup></b> <sup>1</sup> USDA-NIFA Food Virology Collaborative (NoroCORE), North Carolina State U, Raleigh; <sup>2</sup> Math, Social, & Natural Sciences, Johnston Community College, Smithfield, NC
<b>P174</b>	Maggots 101: A Lesson in Entomology for Law Enforcement	<b>Michelle N. Tremblay, Edward B. Mondor</b> Biology, Georgia Southern U, Statesboro

### Saturday, Apr 2nd (ASB Posters # 158-274)

<b>P175</b>	The Development and Implementation of a Natural Science Living and Learning Community Utilizing the Biological Field Station at the University of Tennessee at Chattanooga	<b>Erin Schrenker, Margaret Dempsey, Alexandra Korshun, Ashton Mitchell, Richard Schwartz, Bradley Reynolds, Thomas P. Wilson</b> Innovation in Honors Program c/o Biology, Geology, and Environmental Science, U of Tennessee at Chattanooga
<b>P176</b>	Evidence for Cognitive Bias in Undergraduate Biology Students	<b>Elizabeth Harrison<sup>1</sup>, Joel K Abraham<sup>4</sup>, Virginia M Card<sup>3</sup></b> <sup>1</sup> Science & Technology, Georgia Gwinnett College, Lawrenceville; <sup>2</sup> Biological Science, California State U, Fullerton; <sup>3</sup> Biology, Metropolitan State U, Saint Paul, MN
<b>P177</b>	Nuts and Bolts of a Curriculum Revision	<b>Heather P. Griscom, Patrice M Ludwig, Kyle N Seifert</b> Biology, James Madison U, Harrisonburg, VA
<b>P178</b>	Synthesis and Efficacy Testing of Novel Anti-biofilm Lead Compounds—Authentic Research in an Undergraduate Classroom	<b>David Goode<sup>1</sup>, Christina Bure<sup>4</sup>, Shawn Canavan<sup>4</sup>, Linda L. Hensel<sup>4</sup></b> <sup>1</sup> Chemistry, Mercer U, Macon, GA; <sup>2</sup> Biology, Mercer U, Macon, GA
<b>P179</b>	UV-induced DNA Topology Affects Transformation Frequency in <i>E. coli recA<sup>+</sup></i> and <i>recA<sup>-</sup></i> strains: Authentic Research in a Junior-level Genetics Course	<b>Priyanka Naik<sup>1</sup>, Kaitlyn McBride<sup>1</sup>, Linda L. Hensel<sup>1</sup></b> Biology, Mercer U, Macon, GA

P180 Cancellation

## MICROBIOLOGY 2

P181	Microbial Diversity in Student Athletes: Implications for Human Health	Nadine Brockmann, Virginia Merida, Carmony L. Hartwig Biology, Catawba College, Salisbury, NC
P182	Analysis of the DNA Binding Characteristics of GerE From <i>Geobacillus Stearothermophilus</i>	Rodrigo Catalan-Hurtado, Dinene L. Crater Biology, High Point U, NC
P183	The Impact Of Viral Load on Mite Parasitism In Harvestmen (Opiliones)	Devanshi D. Patel, Robert M. Roach, Michael K. Moore, Virginia A. Young Biology, Mercer U, Macon, GA
P184	Polyunsaturated Fatty Acids (PUFAs) Impact Antimicrobial Peptide Resistance in <i>Pseudomonas aeruginosa</i> and <i>Klebsiella pneumoniae</i> and Cause Reduced Motility in <i>P. aeruginosa</i>	Lyssa Y. Baker, David K. Giles Biological and Environmental Sciences, U of Tennessee at Chattanooga
P185	Isolation and Characterization of Wild Yeasts from Fruit Samples	Mikaela M. Hardy, Kevin M. Pitz Biological Sciences, U of Tennessee at Martin
P186	Development of a Test to Measure Possible Correlation between Stress and Increased <i>Streptococcus mutans</i> in College Students	Kaitlyn G. Jackson, Kevin B. Kiser Biology and Marine Biology, UNC Wilmington
P187	Isolation, Characterization and Antibiotic Susceptibility of <i>Staphylococcus</i> Species on Surfaces in a University Weightlifting Facility	Danielle M. D'Angelo, Camry L. Wagner, Kristen T. Jemigan, Kevin B. Kiser Biology and Marine Biology, UNC Wilmington
P188	The Effect of 17 $\alpha$ -Ethinyl Estradiol on the Growth of Uropathogenic <i>Escherichia coli</i>	Zahna Bigham, Monica Mohanty, Wanda T. Schroeder Biology, Wesleyan College, Macon, GA
<b>Saturday, Apr 2<sup>nd</sup> (ASB Posters # 158-274)</b>		
P189	Rainfall Influence on <i>Escherichia coli</i> for the Anderson University Cox Creek Monitoring Site	Thomas H. Hogan, Carrie Koenigstein Biology, Anderson U, Anderson, SC
P190	Development of Continuous Cultures for the Purification and Repurposing of Chitin	Jamal H. Hunter, Carrie R. Crabtree Science, Abraham Baldwin Agricultural College, Tifton, GA
P191	Isolating Fungal and Bacterial Growth on Agar Mediums	Joshua Doughty, Jeffrey Thomas Biology, Queens U of Charlotte, NC
P192	Specificity of bacteriophage when infected into <i>Bacillus thuringiensis kurstaki</i> and <i>Bacillus thuringiensis israelensis</i>	Olivia R. Brown, April Sipprell Biology, Queens U of Charlotte, NC
P193	Isolation and Characterization of Kudzu Nodule Bacterial Growth in Nitrogen-Free Media	Chasity Lawless, Debbie Curtis, Mishal Jamil, Michelle Zedonek, Amelia Abdullah, Robert Haining, Lee Kurtz, Rebekah Ward Science & Technology, Georgia Gwinnett College, Lawrenceville

<b>P194</b>	Investigations into putative Kudzu nodule "cheaters"	<b>Chasity Lawless, Debbie Curtis, Mishal Jamil, Michelle Zedonek, Amelia Abdullah, Robert Haining, Lee Kurtz, Rebekah Ward</b> Science & Technology, Georgia Gwinnett College, Lawrenceville
<b>P195</b>	Manipulating the cellular genome of a <i>Francisella tularensis</i> -infected cell	<b>Janay Franklin, Sharon Taft-Benz, Shaun Steele, Lauren Radlinski, Tom Kawula</b> Microbiology and Immunology, UNC Chapel Hill, Chapel Hill, NC

## CELL & MOLECULAR BIOLOGY 2

<b>P196</b>	RNA-Processing Genes Control Sensory Neuron Function in <i>Drosophila melanogaster</i>	<b>Amber D. Dyson, Morgan R. Gaglianese-Woody, Carolyn K. Kawada, Rebecca K. Stewart, Andrew C. Bellemer</b> Biology, Appalachian State U, Boone, NC
<b>P197</b>	Role of IL-3 in Immune Responses to <i>Plasmodium berghei</i> in a Murine Model of Malaria	<b>Samantha Saylor<sup>1</sup>, Malia D. Berg<sup>1</sup>, Chris S. Lantz<sup>2</sup>, Tracy L. Deem<sup>1</sup></b> <sup>1</sup> Biology, Bridgewater College, Bridgewater, VA; <sup>2</sup> Biology, James Madison U, Harrisonburg, VA
<b>P198</b>	p65 <sup>ΔH</sup> /LysMCre Transgenic Mouse Model Shows Altered NF-κB Signaling in Macrophages	<b>Shelby Howard, Aditi Talkad, Eesha Oza, Jennifer Bradford</b> Biological Sciences, Augusta U, GA
<b>P199</b>	Measuring UV Sensitivity in New Zealand Vineyard Yeast Species	<b>Emery Longan, Melissa Knutsen, Renee J. Chosed</b> Biology, Furman U, Greenville, SC
<b>P200</b>	Identification of a Mammalian Equivalent for the Autophagy-Related Yeast Protein Atg27	<b>Thomas S. Moss, Veronica A. Segarra</b> Biology, High Point U, NC
<b>P201</b>	Cell Viability and Gene Regulation Following Exposure to Contents of E-Cigarette Refill Solutions	<b>Maxwell Marlowe<sup>1</sup>, Gretchen E Potts<sup>2</sup>, Margaret Kovach<sup>1</sup>, Ethan Carver<sup>1</sup></b> <sup>1</sup> Biological and Environmental Sciences, U of Tennessee at Chattanooga; <sup>2</sup> Chemistry, U of Tennessee at Chattanooga
<b>P202</b>	The Effects of Glucose, Saccharine, Aspartame, and Sucralose on Longevity in <i>Caenorhabditis elegans</i> .	<b>Emily K. Deas, Robert T. Grammer</b> Biology, Belmont U, Nashville, TN

## Saturday, Apr 2<sup>nd</sup> (ASB Posters # 158-274)

<b>P203</b>	<i>In Vitro</i> Analysis of Transcription Repression by GerE during Sporulation in <i>Bacillus subtilis</i>	<b>Maria Valverde, Dinene L. Crater</b> Biology, High Point U, NC
<b>P204</b>	Effects of stress on hormonal protection in neuronal-like cells	<b>Bridget Smith, Kathleen Hughes, Glenn Stokes, Kevin Burgess</b> Biology, Columbus State U, Columbus, GA
<b>P205</b>	Total Synthesis of the Far-red Fluorescent Protein mNeptune2	<b>Kenyon D. Jones, Robert H. Newman</b> Biology, North Carolina A & T State U, Greensboro

## HERPETOLOGY 2

<b>P206</b>	Substrate Avoidance Behavior in Green Salamanders, <i>Aneides aeneus</i>	<b>Paul V. Cupp, Jr.</b> Biological Sciences, Eastern Kentucky U, Richmond
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<b>P207</b>	Effect of Predation Risk on the Substrate Choice of Two-Line Salamander, <i>Eurycea cirrigera</i> , Larvae	<b>Miranda Gulsby, Riccardo Fiorillo</b> Science & Technology, Georgia Gwinnett College, Lawrenceville
<b>P208</b>	A Test of Ecological Character Displacement between the Larvae of Two Species of Cryptic, Sympatric Species of Two-lined Salamander ( <i>Eurycea wilderae</i> and <i>E. cirrigera</i> )	<b>Kristina Coggins, Stephen Owensby, Carlos D. Camp</b> Biology, Piedmont College, Demorest, GA
<b>P209</b>	Acute Toxicity of Copper to the Larval Stage of Three Species of Ambystomatid Salamanders	<b>Scott M. Weir<sup>1</sup>, Shuangying Yu<sup>4</sup>, David E. Scott<sup>2</sup>, Stacey L. Lance<sup>3</sup></b> <sup>1</sup> Biology, Queens U of Charlotte, NC; <sup>2</sup> Environmental Science and Chemistry, Queens U of Charlotte, NC; <sup>3</sup> Savannah River Ecology Laboratory, U of Georgia, Aiken, SC
<b>P210</b>	Geospatial Analysis of Introduced Python in Florida	<b>Rob Hopkins, Jacob Manning</b> Wildlife Conservation Program, U of Rio Grande, OH
<b>P211</b>	The Importance of Gas Line Right-of-Ways as Breeding Habitat for the Pine Barrens Treefrog ( <i>Hyla andersonii</i> ) at Carolina Sandhills National Wildlife Refuge	<b>Eran S. Kilpatrick<sup>1</sup>, Nancy Jordan<sup>4</sup>, Gregory T. Joye<sup>3</sup>, Will Dillman<sup>*</sup></b> <sup>1</sup> Mathematics and Science, U of South Carolina, Salkehatchie, Walterboro; <sup>2</sup> Carolina Sandhills National Wildlife Refuge, McBee, SC; <sup>3</sup> Civil and Environmental Engineering, U of South Carolina, Columbia; <sup>4</sup> South Carolina Dept of Natural Resources, Columbia
<b>P212</b>	The Spatial Ecology of the Eastern Box Turtle in an Urban and Fragmented Landscape of Southeast Tennessee	<b>Mark J. Dillard, Jeremy Hooper, Team Salamander, Thomas P. Wilson</b> Biology, Geology & Environmental Sciences, U of Tennessee at Chattanooga
<b>P213</b>	Ultraviolet Predicts Body Size in Adult Eastern Fence Lizards ( <i>Sceloporus undulatus</i> )	<b>Cambre L. Goodlett, Barry P. Stephenson</b> Biology, Mercer U, Macon, GA
<b>P214</b>	The Effect of Acclimation Temperature on Anaerobic Metabolism in Exercising Yellowbellied Sliders ( <i>Trachemys scripta scripta</i> )	<b>Bethany L. Williams<sup>1</sup>, Amanda S. Willard<sup>1</sup></b> Biology and Marine Biology, U of NC Wilmington
<b>P215</b>	The Population Dynamics of the Gopher Tortoises on Cumberland Island, Georgia	<b>Alexandria A. Gagne<sup>1</sup>, Thomas K. Moore<sup>4</sup>, John J. Enz<sup>1</sup>, David E. Unger<sup>4</sup></b> <sup>1</sup> Biology & Marine Science, Jacksonville State U, AL; <sup>2</sup> Biology, Maryville College, Maryville, TN
<b>P216</b>	Phylogeographic Patterns Among Eastern Newts ( <i>Notophthalmus viridescens</i> ) in the Southeastern United States	<b>Gavin R. Lawson<sup>1</sup>, Eran S. Kilpatrick<sup>2</sup></b> <sup>1</sup> Biology, Bridgewater College, Bridgewater, VA; <sup>2</sup> Biology, USC Salkehatchie, Walterboro
<b>Saturday, Apr 2<sup>nd</sup> (ASB Posters # 158-274)</b>		
<b>P217</b>	Testing the Effect of Albinism on Avian Attack Rates in Eastern Garter Snakes ( <i>Thamnophis s. sirtalis</i> ).	<b>Zeshan S. Velani<sup>1</sup>, Nikolett Ihász<sup>4</sup>, Barry P. Stephenson<sup>1</sup></b> <sup>1</sup> Biology, Mercer U, Macon, GA; <sup>2</sup> Psychology, Mercer U, Macon, GA
<b>ENTOMOLOGY/INVERTEBRATES/PARASITOLOGY 2</b>		
<b>P218</b>	The Effect of Background and Illumination on the Visual Cues Used by Foraging <i>Manduca sexta</i> Hawkmoths	<b>William L. Kuenzinger, Jonathan M. Travis, Jordan Weesner, Joaquín Goyret</b> Biological Sciences, U of Tennessee at Martin
<b>P219</b>	The Effects of the Neonicotinoid Imidacloprid on the Electoretinogram (ERG) of the parasitoid wasp <i>Nasonia vitripennis</i>	<b>Amanda L. Perez, Shihui Liang, Barry K. Rhoades</b> Biology, Wesleyan College, Macon, GA

<b>P220</b>	Foraging Behaviors of the Fungus-growing Ant, <i>Cyphomyrmex rimosus</i>	<b>Julia de Amorim, Athena Downes, Kelsea Young, John David Riechert, Forrest Collins, Jennifer Zettler, Bil Leidersdorf</b> Biology, Armstrong State U, Savannah, GA
<b>P221</b>	Does Color Matter? Function of Color Polymorphism in <i>Gasteracantha cancriformis</i> in Northeast Florida	<b>Sean M. Zwegardt, E. Natasha Vanderhoff</b> Biology & Marine Science, Jacksonville State U, AL
<b>P222</b>	A Six-Year Survey of Flower Fly (Family <i>Syrphidae</i> ) Diversity and Abundance Found in Georgia Apple Orchards (2010-2015) Over Significantly Different Growing Seasons	<b>Peter M. Schlueter<sup>1</sup>, Mark A. Schlueter<sup>2</sup></b> <sup>1</sup> U of North Georgia, Oakwood; <sup>2</sup> Georgia Gwinnett College, Lawrenceville
<b>P223</b>	Excess Power Index: A Sexually Dimorphic Trait in Bees	<b>Samia Ladner, Gabrielle A. Hayes, Kristen Korankyi, Josh Campbell, Cindy C. Vigueira, Patrick A. Vigueira</b> Biology, High Point U, NC
<b>P224</b>	Delimiting Cryptic Species of the <i>Anopheles crucians</i> Complex in the Fred Stanback Jr. Ecological Preserve at Catawba College, Salisbury, North Carolina	<b>Matthew Jordan-Steele, Joshua York, Elizabeth Brown, Ashley Wagoner, Bruce Harrison, Carmony L. Hartwig</b> Biology, Catawba College, Salisbury, NC
<b>P225</b>	Investigation of Cysteine-Rich Peptides in the Parasitoid Wasp <i>Copidosoma floridanum</i>	<b>Richard W. Zealy, David M. Donnell</b> Biology, The Citadel, Charleston, SC
<b>P226</b>	A Sequence Comparison of Cytochrome Oxidase I in <i>Hadenoeus cumberlandicus</i> Populations Found in the Sloans Valley Cave System, Pulaski County, Kentucky	<b>Rebecca Holmes, Brandon Miner</b> Molecular Biology/Biochemistry, Wittenberg U, Springfield, OH
<b>P227</b>	Using Fluorescence Microscopy to View Real Time Hemocyte Aggregation in Response to Acute Bacterial Exposure in the American Lobster	<b>Sara J. Farthing, Darwin D. Jorgensen</b> Biology, Roanoke College, Salem, VA
<b>P228</b>	The Role of Tissues and Organs in the Immune Response to Acute Bacterial Infection in the American Lobster: Characterization by Confocal Microscopy	<b>Elaina K. Furr, Angela M. Montalvo, Darwin D. Jorgensen</b> Biology, Roanoke College, Salem, VA
<b>P229</b>	Survey of Microorganisms Associated With Male and Female Genitalia of Harvestmen	<b>Areli Ibarra, Renee M. Wiggs, Victor R. Townsend, Jr.</b> Biology, Virginia Wesleyan College, Norfolk
<b>P230</b>	Lethal Concentration Rates of Eight Potential Entomopathogens	<b>Juan Morales, Erika S. Niland</b> Biology, Wingate U, NC

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#### AQUATIC ECOLOGY 2

<b>P231</b>	Pre-Restoration Survey of Fish Diversity in a NW Georgia Lake and Wetland	<b>J. Aaron Burnette, Mary Ann McBrayer, G. John Lugthart</b> Natural Sciences, Dalton State College, GA
<b>P232</b>	Sedimentation in Headwater Streams in a State Park	<b>Danielle Williams<sup>1</sup>, Elizabeth G. Dobbins<sup>2</sup></b> <sup>1</sup> Chemistry, NC Agricultural & Technical State U, Greensboro; <sup>2</sup> Biological & Environmental Sciences, Samford U, Birmingham, AL

<b>P233</b>	Cancellation	
<b>P234</b>	Do Stream Restoration Projects Get Better With Age?	<b>Elizabeth B Sudduth</b> Science & Technology, Georgia Gwinnett College, Lawrenceville
<b>P235</b>	Cumulative Impacts of Coal Mining on the Chemistry of the Black Warrior River	<b>Tao Li, Elizabeth G. Dobbins</b> Biological & Environmental Science, Samford U, Birmingham, AL
<b>P236</b>	Sediments Alter the Decomposition of Leaf Litter in Small Man-Made Ponds in Central Virginia	<b>Julia Marcellus<sup>1</sup>, Jen Andrews<sup>1</sup>, Kenneth Fortino<sup>1</sup>, Matthew N. Waters<sup>2</sup></b> <sup>1</sup> Biological and Environmental Sciences, Longwood U, Farmville, VA; <sup>2</sup> Biology, Valdosta State U, GA
<b>P237</b>	Effects of an Industrial Basin Overflow on Trace Element Accumulation in Sediment and Biota of a Coastal Plain Stream	<b>Paul T. Stankus, Angela H. Lindell, John C. Seaman, J Vaun McArthur, Dean E. Fletcher</b> Savannah River Ecology Laboratory, U Georgia, Athens
<b>P238</b>	Observations on the Fecundity of <i>Bellamyja japonica</i> , a New Invasive Species in the Savannah River Basin	<b>Josephine B Anthony, Lauren E Turbyfill, Richard L Mahon, Ashley Gaynor, John Hains</b> Biological Sciences, Clemson U, Clemson, SC
<b>P239</b>	Determining the Molecular Weight of the Alarm Cue in the Crayfish <i>Cambarus acuminatus</i> Using a Behavioral Assay	<b>Andrea Sanchez, Abbie Tomba</b> Biology, U of Mary Washington, Fredericksburg, VA
<b>P240</b>	Observations on the Metabolism of <i>Bellamyja japonica</i> , a New Invasive Species in the Savannah River Basin	<b>Sarah Fishburne, Jacob Bartell, John Hains</b> Biological Sciences, Clemson U, Clemson, SC
<b>P241</b>	Population Dynamics of <i>Bellamyja japonica</i> : An Experimental Investigation of Sources of Mortality	<b>John Hutson, Kyle Kilpatrick, Nike Pappas, Jake Laird, John Hains</b> Biological Sciences, Clemson U, Clemson, SC
<b>P242</b>	The Effects of Temperature on the Exotic Zooplankton [ <i>Daphnia lumholtzi</i> ]	<b>Melissa Pompilius, Robert U. Fischer</b> Biology, Middle Tennessee State U, Murfreesboro
<b>P243</b>	Variation in Parrotfish Species Abundance and Sex Ratios among Multiple Reefs of Calabash Caye, Belize	<b>Donna K. McCullough, Ellen C. Tomlin, Kimberly T. Wright, Jill G. Schulze, Nancy E. Dalman</b> Biology, U North Georgia, Dahlonega
<b>P244</b>	Influence of Perched Road Culverts on the Abundance of Blacknose Dace ( <i>Rhinichthys atratulus</i> ) in Blue Ridge Streams in Cherokee National Forest, Tennessee	<b>Mark S. Schorr<sup>1</sup>, Dan Huser<sup>2</sup>, Josuha B. Smith<sup>2</sup></b> <sup>1</sup> Biology, Geology & Environmental Sciences, U of Tennessee at Chattanooga; <sup>2</sup> Limestone Valley Resource Conservation and Development Council, Fort Oglethorpe, GA
<b>Saturday, Apr 2<sup>nd</sup> (ASB Posters # 158-274)</b>		
<b>P245</b>	Digenetic Trematodes of Eastern Virginia: an Ode to DNA Barcoding	<b>Teresa Nguyen, Abbie Tomba</b> Biology, U of Mary Washington, Fredericksburg, VA
<b>P246</b>	Cancellation	

## CONSERVATION ECOLOGY 2

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|-------------|---|---|
| <b>P247</b> | A Comparative Study of Disturbed and Undisturbed Forest Patches: Variation in Bird Communities Within a <i>Brachystegia</i> Woodland  | <b>Joseph Oyugi</b><br>Natural Sciences, Gardner–Webb U, Boiling Springs, NC; Zoology–Ornithology Section, National Museums of Kenya, Nairobi   |
| <b>P248</b> | Anthropogenic Sound Pollution and Northern Cardinal Calls   | <b>Johanna P. Cotter, E. Natasha Vanderhoff</b><br>Biology and Marine Science, Jacksonville State U, AL   |
| <b>P249</b> | Does Sustainable Pasture Management Increase Soil Carbon? Implications for Climate Change   | <b>Kelly M Livernoche, Heather P. Griscom</b><br>Biology, James Madison U, Harrisonburg, VA   |
| <b>P250</b> | Effects of Leguminous and Timber Shade Trees on Coffee ( <i>Coffea arabica</i> ): Exploring Plantation Diversification                | <b>Anna E. Nordseth</b><br>Biology, James Madison U, Leesburg, VA   |
| <b>P251</b> | Experimental Trials with American Chestnut Hybrid Seedlings in an Appalachian Cove Forest   | <b>Megan Budnik, Andrew Sharp, Heather P. Griscom</b><br>Biology, James Madison U, Harrisonburg, VA   |
| <b>P252</b> | Effect of Topography on White-Tailed Deer ( <i>Odocoileus virginianus</i> ) Herbivory Across a Plateau Landscape                      | <b>Jonathan P. Evans<sup>1</sup>, Callie A. Oldfield<sup>1</sup>, Kristen K. Cecala<sup>1</sup>, J. Kevin Hiers<sup>4</sup>, Christopher Van De Ven<sup>5</sup>, Meg M. Armistead<sup>1</sup></b><br><sup>1</sup> Biology, Sewanee: The U of the South, TN; <sup>2</sup> Environmental Stewardship and Sustainability, Sewanee: The U of the South, TN; <sup>3</sup> Earth and Environmental Systems, Sewanee: The U of the South, TN |
| <b>P253</b> | Comparison of the Application of Two Herbicides as a Management Strategy for Running Buffalo Clover ( <i>Trifolium stoloniferum</i> ) | <b>Lauren Childress, Jennifer Koslow, David Brown</b><br>Biological Sciences, Eastern Kentucky U, Richmond  |
| <b>P254</b> | Ambient Detectable Mercury Within the Habitat of “Uncontaminated” Terrestrial Forest Ecosystems in Rockingham Co., VA                 | <b>Melissa E. Encinias, Gregory M. Mansour, Matthew W. Riordan, Walker S. Webster, Dean Cocking</b><br>Biology, James Madison U, Harrisonburg, VA   |
| <b>P255</b> | Ambient Detectable Mercury Within the Invertebrate Biota of “Uncontaminated” Terrestrial Forest Ecosystems in Rockingham Co., VA      | <b>Gregory M. Mansour, Melissa E. Encinias, Matthew W. Riordan, Walker S. Webster, Dean Cocking</b><br>Biology, James Madison U, Harrisonburg, VA   |
| <b>P256</b> | Assessing Genetic Diversity in <i>Spiraea virginiana</i>  | <b>Logan Clark<sup>1</sup>, Marietta Shattelroe<sup>4</sup>, Kristin Barton<sup>4</sup>, Zack E. Murrell<sup>1</sup>, Jennifer Rhode Ward<sup>4</sup>, Matt C. Estep<sup>1</sup></b><br><sup>1</sup> Biology, Appalachian State U, Boone, NC; <sup>2</sup> Biology, UNC at Asheville  |

## COMMUNITY ECOLOGY

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|-------------|--|--|
| <b>P257</b> | Flower Power: Does Methyl Jasmonate Induce Extrafloral Nectar?     | <b>Erin R. Smarr, Edward B. Mondor</b><br>Biology, Georgia Southern U, Statesboro        |
| <b>P258</b> | Evaluating Bird and Plant Communities of a Degraded, Urban Wetland | <b>Susan H. Tinch, David W. DesRochers</b><br>Natural Sciences, Dalton State College, GA |



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**Saturday, Apr 2<sup>nd</sup> (ASB Posters # 158-274)**

<b>P259</b>	Investigating Spatial and Diurnal Patterns for the Sand Dune Shrub <i>Croton punctatus</i> in Georgia	<b>Esther Medrano, Savannah Chiarello, Heather Joesting</b> Biology, Armstrong State U, Savannah, GA
<b>P260</b>	Goldenrod Stem Gall Fly Induction of Terpenes and the Colonization Preference of <i>Solidago</i> Specialist Aphids in the Genus <i>Uroleucon</i>	<b>Austin M. Thomas, Michael D. Madritch, Ray S. Williams</b> Biology, Appalachian State U, Boone, NC
<b>P261</b>	Influence of Disturbance on Plant Community Structure and Biological Invasion in the Riparian Zone of the Mobile-Tensaw Delta	<b>Brian L. McPherson, Clinton S. Major, Joel Borden, Kelly Major</b> Biology, U of South Alabama, Mobile
<b>P262</b>	The Relationship of Salamander Size Structure and Bat Activity in the Land Between the Lakes Watershed in Western Kentucky	<b>Russell Milam<sup>1</sup>, Adrienne Smith<sup>1</sup>, Nancy Buschhaus<sup>1</sup>, Cy Mott<sup>2</sup>, Robin Baker<sup>3</sup>, Howard Whiteman<sup>3</sup></b> <sup>1</sup> Biological Sciences, U of Tennessee at Martin; <sup>2</sup> Biology, Valdosta State U, GA; <sup>3</sup> Biological Science, Murray State U, KY
<b>P263</b>	Does the Spatial Pattern of Tree Recruitment in Temperate Forests Reflect a Species' Successional Status?	<b>Alissa J. Brown, Robert K. Peet, Peter S. White</b> Biology, UNC Chapel Hill
<b>P264</b>	A Size-Dependent Competitive Hierarchy Drives Perch Selection Among Three Species of <i>Celithemis</i> Dragonflies	<b>Parker H. Morrow, Wade B. Worthen</b> Biology, Furman U, Greenville, SC

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**POPULATION ECOLOGY 2**

<b>P265</b>	Seed predation changes reproductive investment in <i>Cirsium pitcheri</i>	<b>Minh Chau N. Ho<sup>1,2</sup>, Claudia L. Jolls<sup>2,3</sup></b> <sup>1</sup> Ecology and Evolutionary Biology Frontiers, U of Michigan, Ann Arbor; <sup>2</sup> U of Michigan Biological Station, Pellston, MI; <sup>3</sup> Biology, East Carolina U, Greenville, NC
<b>P266</b>	Genetic Variability of Three Annual Halophyte Species in an Inland Salt Marsh Through Time	<b>Christy T. Carter<sup>1</sup>, Harvey E. Ballard, Jr.<sup>2</sup>, Irwin A. Ungar<sup>2</sup></b> <sup>1</sup> Biology, Wingate U, NC; <sup>2</sup> Environmental & Plant Biology, Ohio U, Athens
<b>P267</b>	MacGillivray's Seaside Sparrow Demographics and Incubation Behavior at the Tom Yawkey Wildlife Center	<b>Yianni P. Laskaris, Christopher E. Hill</b> Coastal & Marine Systems Science, and Biology, Coastal Carolina U, Conway, SC
<b>P268</b>	Acoustic Monitoring of Bat Populations in Florence, SC	<b>Aaron S. Robinson, Ebony Brown, Jeff Steinmetz, Travis Knowles</b> Biology, Francis Marion U, Florence, SC
<b>P269</b>	Development of Population Genetics Markers for the Rare Parasitic Plant <i>Cuscuta harperi</i>	<b>Brandy R. Riekert, Guissela Arita-Fajardo, Joel R. McNeal</b> Ecology, Evolution & Organismal Biology, Kennesaw State U, GA
<b>P270</b>	Effects of Female Condition and Human Disturbance on the Allocation of Biliverdin to Eggshells of Eastern Bluebirds ( <i>Sialia sialis</i> ) Breeding in West-Central Georgia	<b>Caitlin M. Gallagher, Jennifer L. Newbrey</b> Biology, Columbus State U, GA
<b>P271</b>	Hypoxic Coma as a Strategy to Survive Inundation Across Ground Hunting Arachnid Taxa	<b>Phallon C. Ware-Gilmore<sup>1</sup>, Robert A. Hataway<sup>2</sup></b> <sup>1</sup> Natural Sciences & Mathematics, U of West Alabama, Livingston; <sup>2</sup> Biological & Environmental Sciences, Samford U, Birmingham, AL

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<b>P272</b>	Urban Heat Islands Have an Effect on Moth Phenology, But Not Always the Way You'd Expect	<b>Peter A. Van Zandt<sup>1</sup>, Grant Gentry<sup>4</sup>, Brittany Harry<sup>3</sup>, Will Hemminger<sup>2</sup>, Benjamin Hunt<sup>1</sup>, Sarah Martin<sup>2</sup>, Caroline Rowan<sup>1</sup></b> <sup>1</sup> Biology, Birmingham-Southern College, AL; <sup>2</sup> Biology, Samford U, Birmingham, AL; <sup>3</sup> Entomology, Auburn U, AL; <sup>4</sup> Biology, Elon U, NC; <sup>5</sup> UNC Chapel Hill
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### Saturday, Apr 2<sup>nd</sup> (ASB Posters # 158-274)

#### GENETICS

<b>P273</b>	Genetic and Transcriptional Variation in Venom Genes Expressed by an Estuarine Cnidarian	<b>Adam M. Reitzel<sup>1</sup>, Vanna Sombatsaphay<sup>1</sup>, Yehu Moran<sup>4</sup></b> <sup>1</sup> Biological Sciences, UNC Charlotte; <sup>2</sup> Ecology, Evolution & Behavior, Hebrew U of Jerusalem, Israel
<b>P274</b>	Examining the Genetic Relatedness of <i>Rosa setigera</i> Varieties by DNA Barcoding	<b>Amanda Long<sup>1</sup>, Taylor Faas<sup>1</sup>, Nancy Morvillo<sup>1</sup>, Malcolm Manners<sup>4</sup>, Brittany J. Gasper<sup>1</sup></b> <sup>1</sup> Biology, Florida Southern College, Lakeland; <sup>2</sup> Citrus Science, Florida Southern College, Lakeland

### βββ POSTERS (SATURDAY APRIL 2nd, 9:30 am - noon)

<b>P275</b>	Suwannee bass ( <i>Micropterus notius</i> ) population decline in the Ochlockonee River in Georgia	<b>Kaitlin Dykes, Gary Burtle</b> Tau Delta Kappa, Abraham Baldwin Agricultural College
<b>P276</b>	Testing the Propagative Quality of <i>Tomato yellow leaf curl virus</i> in Its Whitefly Vector	<b>Cassidy Callaway, Wendy Marchant, Rajagopalbabu Srinivasan</b> Tau Delta Kappa, Abraham Baldwin Agricultural College
<b>P277</b>	An Investigation into the Allelopathic Effects of the Invasive Alligator Weed, <i>Alternanthera philoxeroides</i>	<b>Amy Klass, Christopher Beals</b> Tau Delta Kappa, Abraham Baldwin Agricultural College
<b>P278</b>	Neurons and Nematodes: the Use of <i>Ginkgo biloba</i> Extract to Rescue Neurologically Derived Defects in <i>Caenorhabditis elegans</i>	<b>Maegan Thomas, Ariel Battle, Carrie Thurber, Heather Cathcart</b> Tau Delta Kappa, Abraham Baldwin Agricultural College
<b>P279</b>	A Needle in the Transcriptomic Haystack: Using RNA-Seq to Identify Differential Expression in GBE Treated <i>C. elegans</i>	<b>Ariel Battle, Maegan Thomas, Heather Cathcart, Carrie Thurber</b> Tau Delta Kappa, Abraham Baldwin Agricultural College
<b>P280</b>	Mammographic Breast Density Disparities Among African-American and European-American Women	<b>Dementris Williams, Melissa Davis</b> Tau Delta Kappa, Abraham Baldwin Agricultural College
<b>P281</b>	Expression of the Polyhydroxybutyrate Depolymerase Gene of <i>Streptomyces</i> sp. 5A in <i>Streptomyces lividans</i> TK24	<b>CJ Booth, Stephen Baron</b> Nu Upsilon, Bridgewater College
<b>P282</b>	Purification and Genomic Sequencing of Bacteriophages from <i>Streptomyces</i> sp. 5A	<b>Ashley Crossman, Stephen Baron</b> Nu Upsilon, Bridgewater College
<b>P283</b>	Evaluation of Habitat Use by Longnose Dace ( <i>Rhinichthys cataractae</i> ) in Mercury-Contaminated and Non-Contaminated Rivers	<b>Alys Harshbarger, Kimberly Bolyard</b> Nu Upsilon, Bridgewater College

<b>P284</b>	<b>Changes in Tannin Content Found in Vegetation Inside vs. Outside Deer Enclosures of the Allegheny National Forest</b>	Amelia Johnston, Tamara Johnstone-Yellin Nu Upsilon, Bridgewater College
<b>P285</b>	<b>An Alluring Ascomycete: A Taxonomic Study of <i>Chlorosplenium chlorea</i></b>	Maria Marlin, Ed Lickey Nu Upsilon, Bridgewater College
<b>P286</b>	<b>Genetic and Biochemical Characterization of Mutants of Yeast That Grow Brown in the Presence of Copper</b>	Christopher Resch, Brian Schwartz Mu Omicron, Columbus State U
<b>βββ POSTERS (SATURDAY APRIL 2nd, 9:30 am - noon)</b>		
<b>P287</b>	<b>Genetic analysis of North American red mulberry populations using SS-PCR and DNA barcoding</b>	Tabitha Clevenger Mu Omicron, Columbus State U
<b>P288</b>	<b>Effects of acute copper and lead toxicity on the behavior of <i>Pimephales promelas</i> (fathead minnow)</b>	John D. Gary, Jeffrey Zuiderveen Mu Omicron, Columbus State U
<b>P289</b>	<b>Screening for pathogenic <i>Escherichia coli</i> in the Chattahoochee River, Columbus, GA</b>	Micah Staples, Lauren King Mu Omicron, Columbus State U
<b>P290</b>	<b>Diversity of Lichens in Temperate Forest and Sandhills Scrub in West-Central Georgia</b>	Priyanka Moody Mu Omicron, Columbus State U
<b>P291</b>	<b>Epithelial Body Swabbing as a Non-Invasive Method for DNA Sampling of Salamanders</b>	Erin Kirk, George Angyros Eta Jota, Emory & Henry College
<b>P292</b>	<b>Prevalence of Antibiotic Resistance in the Gut Flora (Enterobacteriaceae) in a Community of Stabled Horses (<i>Equus caballus</i>): Implications for Community Acquired Drug Resistance</b>	Anna Green, George Angyros Eta Jota, Emory & Henry College
<b>P293</b>	<b>Determining Different Alternative Male Phenotypes and Reproductive Structure in <i>Lythrypnus dalli</i></b>	Jacob Hess, Melissa Taverner, Matthews Grober Eta Jota, Emory & Henry College
<b>P294</b>	<b>Effects of Vitamin D Receptor Downregulation via Lentivirus Silencing on Human Glioblastoma Cells</b>	James Wilmouth Eta Jota, Emory & Henry College
<b>P295</b>	<b>The Effect of Increased Creatine Levels on Developmental Processes</b>	Kenneth Sterne, Melissa Taverner Eta Jota, Emory & Henry College
<b>P296</b>	<b>Examination of the Possible Correlation Between Microbial Communities and the Diversity of Nitrogen Species</b>	Maria Byrd, Gerald Bresowar, Laura Hainsworth, Melissa Taverner Eta Jota, Emory & Henry College
<b>P297</b>	<b>Computational Modeling of Missense Mutations in the Human Smoothened (SMO) Receptor Implicated in Basal Cell Carcinoma</b>	Sarah McDonald, Neal Stanley, Michonova Ekaterina Sigma Gamma, Erskine College
<b>P298</b>	<b>Phase-Sensitive Thermal Response of Feeding Kinematics in the invasive Lionfish, <i>Pterois volitans</i></b>	Kristina Treat Sigma Psi, Florida Institute of Technology

<b>P299</b>	Thermally induced phenotypic variation in the invasive fish, <i>Cichlasoma urophthalmus</i>	<b>Molly Wightman, Taylor Jones</b> Sigma Psi, Florida Institute of Technology
<b>P300</b>	Ontogeny of ecomorphological divergence in sympatric North American fishes	<b>Nathaniel Zbasnik</b> Sigma Psi, Florida Institute of Technology
<b>P301</b>	The Effects of Severe Drought on Dispersion Patterns of Local Salamander Populations in Streams near Boiling Springs, NC	<b>Wendy A. Harmon, Joseph Oyugi</b> Tau Sigma, Gardner-Webb U.
<b>P302</b>	An unbiased approach to discovering peptide inhibitors of Sialic acid binding CD33 receptor	<b>Sarah Bailey</b> Beta Upsilon, Georgetown College

### βββ POSTERS (SATURDAY APRIL 2nd, 9:30 am - noon)

<b>P303</b>	Exploring Methods in Art-Driven Science Outreach	<b>Casey H Wilson, Casey Garr, Christina Budzinski, Tawannah Allen, Theresa Hegedus, Veronica A. Segarra</b> Phi Zeta, High Point University
<b>P304</b>	Mutagenic characterization of a newly-recognized mannose-6-phosphate receptor domain in Atg27 and its role in autophagy	<b>Taylor B. Cunningham, Veronica A. Segarra</b> Phi Zeta, High Point University
<b>P305</b>	DNA Sequence is the Key to Understanding Meiosis	<b>Kayla DeOca</b> Sigma Alpha, Jacksonville U
<b>P306</b>	Variations in Juvenile Rat Play Behavior Among Three Rat Strains	<b>Vesta Nwankwo, Katharine V. Northcutt</b> Beta Omega, Mercer University
<b>P307</b>	Bacterial Response to the Elk River Chemical Spill in West Virginia	<b>Elena Brown, Joong-Wook Park</b> Mu Epsilon, Troy U
<b>P308</b>	Analysis of Bacterial Community along a Depth Gradient in Marine Tar Balls	<b>Madison A. Cooper, Katrina Bokenfohr, Callie Bennett, Joong-Wook Park</b> Mu Epsilon, Troy U
<b>P309</b>	Microarchitecture of the Hair Shaft	<b>Mona Patel, Abena Adaboh, Cathy Huang, Glenn Cohen</b> Mu Epsilon, Troy U
<b>P310</b>	Regulation of BMP-dependent angiogenesis via the SMAD7 and PMEPA1 inhibitors	<b>Kathryn Citrin</b> Tau Iota, U of NC Chapel Hill
<b>P311</b>	Detection of Tetracycline and Penicillin Resistance by PCR	<b>Tesha Vickery, Alexis Melton, Lisa Ann Blankinship</b> Beta Zeta, U of North Alabama
<b>P312</b>	Antibiotic Resistance Profiles of Bacteria Found on Cell Phones and the Hands of their Owners	<b>Breanna A. Littrell, Lisa Ann Blankinship</b> Beta Zeta, U of North Alabama
<b>P313</b>	Effect of All Trans Retinoic Acid on Collagen Production by Uterine Smooth Muscle Cells	<b>Sunada Khadka, Yuting Bai, Holly Boettger-Tong</b> Sigma Lambda, Wesleyan College

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Please keep in mind that recipients of ASB awards must be present at the annual ASB banquet to receive the award. Therefore, all applicants for ASB awards must attend the banquet to insure the presence of the winners.

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All applicants for ASB research awards must be ASB members in good standing, and be duly registered for the annual meeting. If necessary, check with the Treasurer for verification before you apply.

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Besides sending abstracts of papers and posters to the Program Committee by February 7, 2016, anyone wishing to be considered for an award must send an abstract to the respective award committee chairperson in order to be considered. An abstract must be sent to the chairperson by February 7, 2016.

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- **Oral presentations** are allotted 15 minutes (12 for talk, 3 for questions) and slides must be in PowerPoint format on a USB memory drive.
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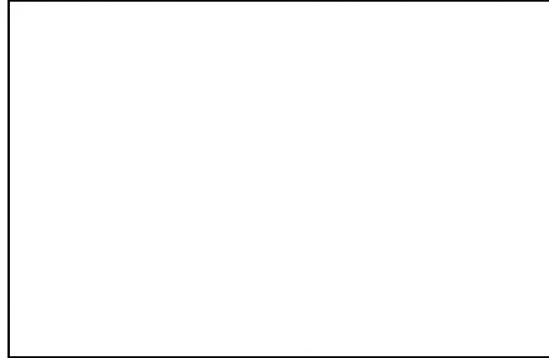
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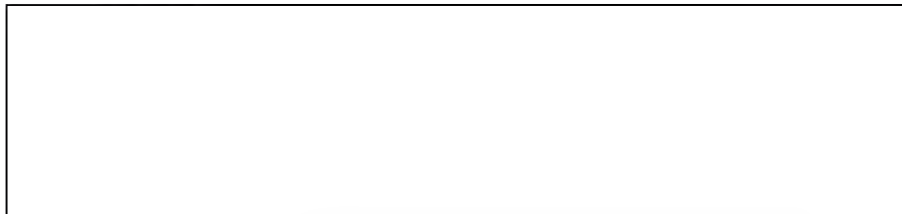
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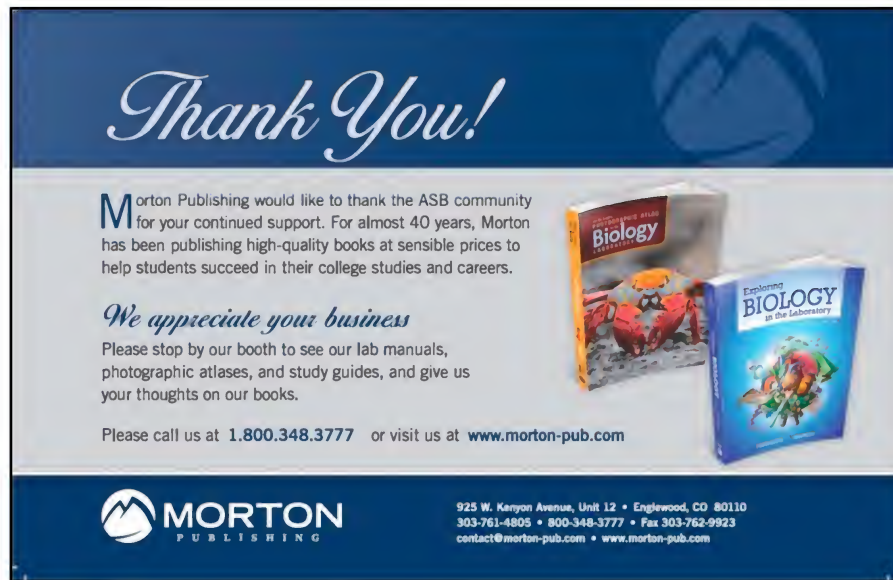
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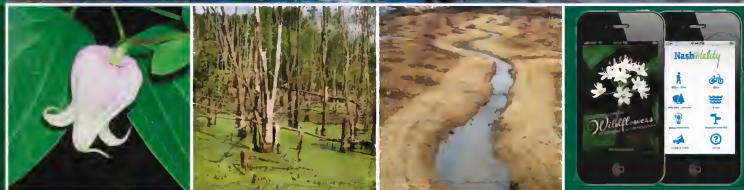
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